OL. 81 NO. 2

textile bulletin

FEBRUARY • 1955

In plain words, what will tariff slashes mean to YOU? 71

Ways to reduce "non-preventable" card waste 77

Concentration control, a new key to bleaching uniformity . . . 88

Sectional INDEX

The Textile ...istry's Use 42
•
The Mill ...shelf 56
•
...ing The Textile ...ustry 64
•
...ching ...hington 67
•
...orial 69
•
...ile Industry ...edule 70
•
...ning, Picking, ...ding & Spinning. 77
•
... Preparation ...aving 80
•
...ching, Dyeing ...inishing 85
•
...tenance, Engi- ...ring & Handling. 91
•
...ional News 97
•
... News 103
•
...sified ...ertising 119

...ILE BULLETIN is published ...thly by Clark Publishing ... 218 West Morehead St., ...rlotte 2, N.C. Subscription ...0 per year in advance, $3 ...three years. Entered as ...ond-class mail matter ...ch 2, 1911, at Postoffice, ...lotte, N. C., under Act ...ngress, March 2, 1897.

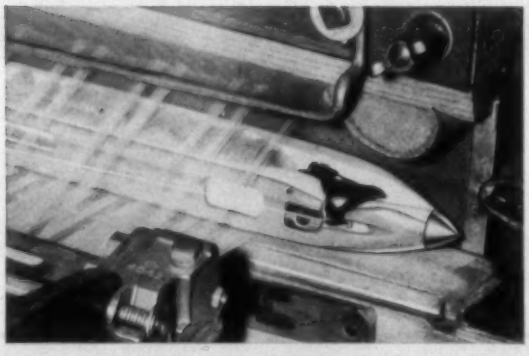
There is a difference between shuttles . . .

. . . and that difference lies in the engineering. A shuttle may meet the highest standards for materials and workmanship, but to be the right shuttle, it must be engineered by men who have a thorough knowledge of your looms.

DRAPER shuttles are engineered by the same men who design DRAPER HIGH SPEED AUTOMATIC LOOMS.

Draper shuttles are correct in size and construction — tailor made to fit your needs.

When you order Draper shuttles you not only get the *best*, but the *right shuttles*.



Strobolite photograph of Draper True Flight shuttle in action.

DRAPER CORPORATION

HOPEDALE, MASS.

ATLANTA, GA.

GREENSBORO, N. C.

SPARTANBURG, S. C.

Cut Maintenance Costs, *with these scientifically*

Dayton Thorobred Drop Box Pickers, with "3-Point Density Control," absorb loom shocks, protect loom parts and increase loom efficiency.

Test Dayton Pickers on *your* looms. You'll be amazed by the outstanding performance made possible by "3-Point Density Control."

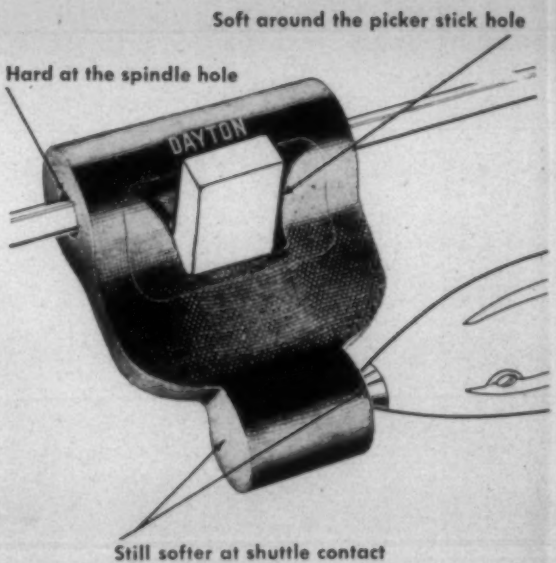
This exclusive feature gives the composition of every Dayton Picker 3 different densities at the 3 points of contact . . . right where they're needed!

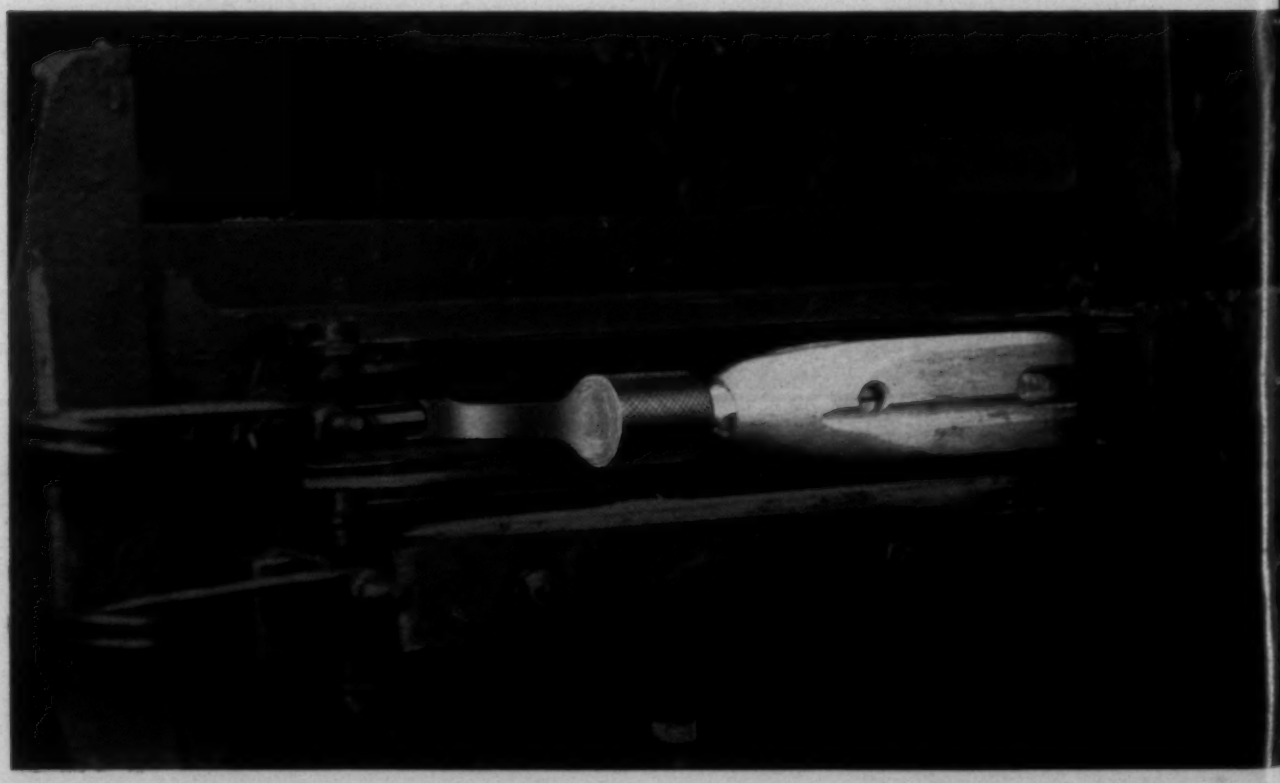
In the spindle hole of the Dayton Picker an integral, extra-hard composition bearing surface prevents wear . . . requires no lubrication.

The picker stick hole is provided with a softer composition to absorb the impacts of the picker stick.

At the picker shuttle contact point a still softer composition eliminates shuttle point loosening and helps assure a perfect throw every time.

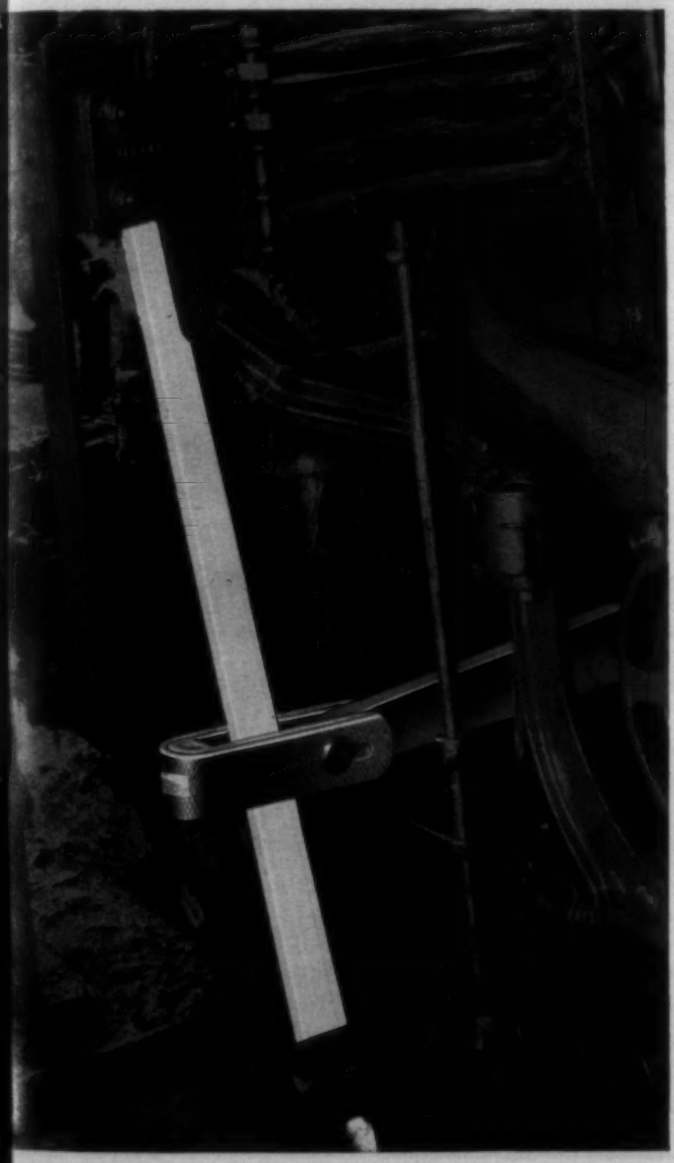
Equip your looms with Daytons . . . available in reversible and non-reversible types. See your loom man today or mail the coupon for details.





Improve Loom Output

designed Dayton Products!

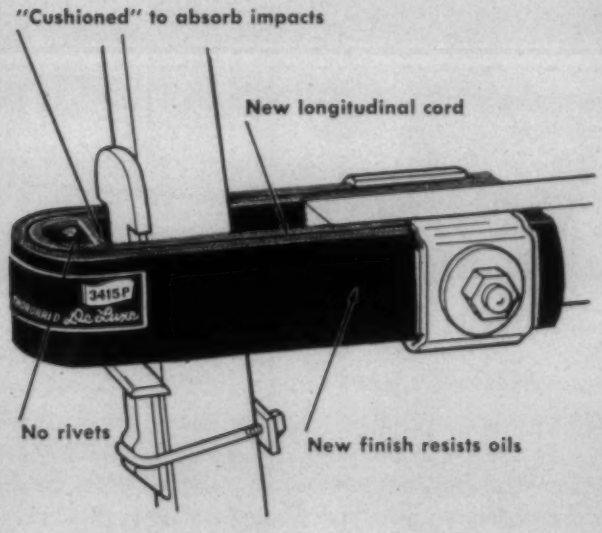


Dayton Thorobred DeLuxe Lug Straps are built in one piece with the cushion and strength for efficient, economical service.

Tests prove Dayton Thorobred DeLuxe Straps give twice the service life because they are scientifically engineered and built in *only* one piece.

A built-in molded plug absorbs the terrific thrusts of the picker stick . . . protects expensive loom parts. A special longitudinal cord in the center of Dayton Lug Straps provides *extra* strength . . . takes millions of picker stick blows without "fatigue." Too, Daytons work perfectly in any weather — are not affected by temperature or humidity.

Daytons are available for all type looms. Contact your loom supply jobber or mail the coupon for all the facts.



Dayton Rubber

Since 1905

Dayco and Dayton Thorobred Textile Products for Better Spinning and Weaving

Dayton Rubber Co., Textile Division, 401 S. Carolina National Bank Bldg., Greenville, S. C.

Dayton Rubber Company
Textile Division, Dept. 302
401 S. Carolina National Bank Bldg., Greenville, S. C.

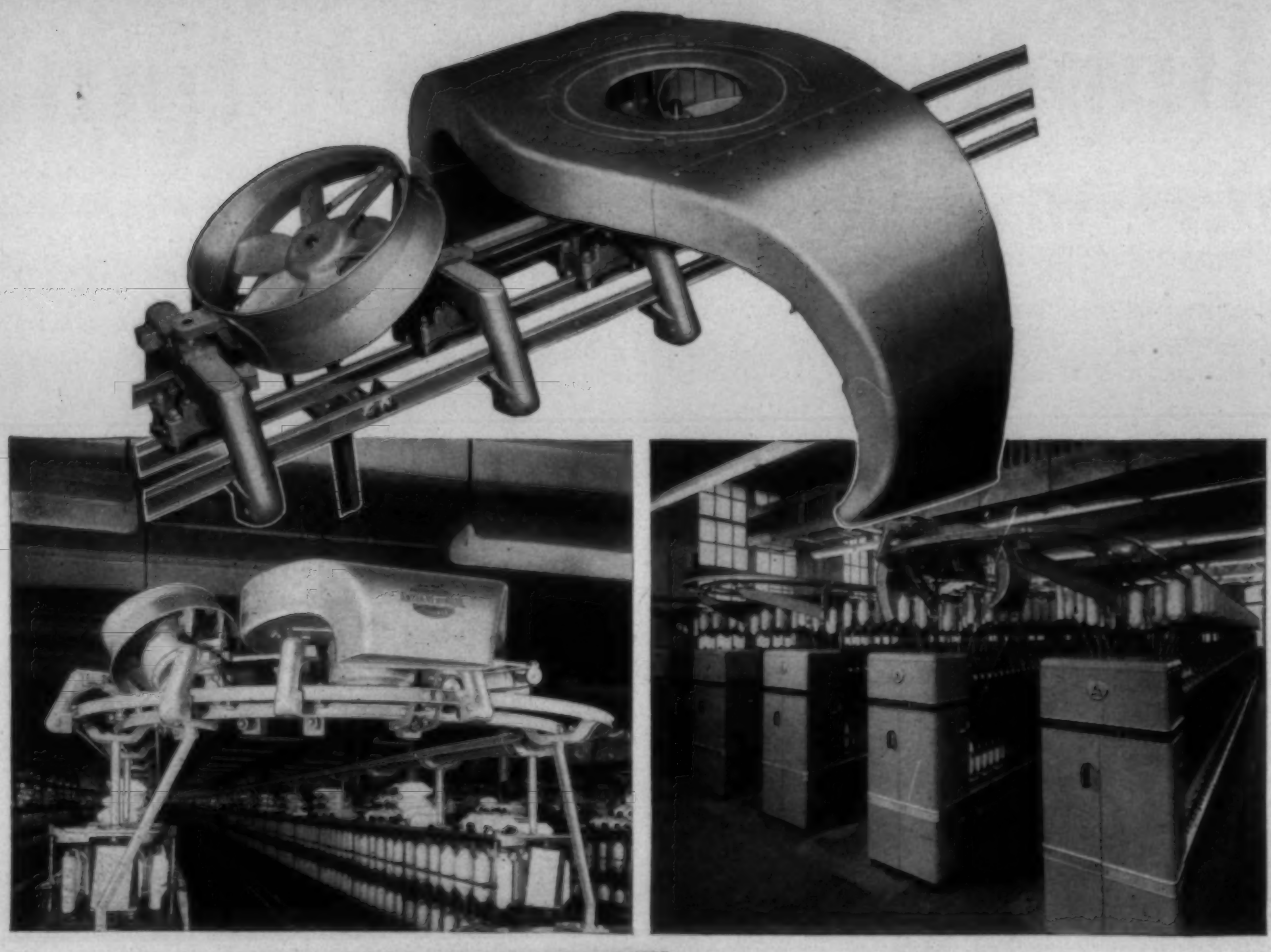
Send me additional information on cost-cutting Dayton Thorobred Drop Box Pickers and Dayton Thorobred DeLuxe Lug Straps.

*Name*_____

*Mill Name*_____

*Address*_____

*City*_____ *Zone*____ *State*_____



"no manual cleaning . . .

on high speed frames spinning low count waste yarns"

This is a report from a mill operator who recently completed installation of American Tri-Rail Cleaners over SG-1 spinning frames.

In addition to low maintenance cost, there are many other advantages of American Tri-Rail Cleaners.

SEND FOR BULLETIN TR-1

Advantages:

- STABILIZED TRAVEL
- SMOOTH REVERSE
- BETTER CEILING CLEANING
- LOWER HEADROOM
- HIGHER SPEED
- GREATER AIR VOLUME
- HIGHER VELOCITY
- NO CONDUCTORS OR COLLECTORS
- BETTER CREEL CLEANING

AND CREEL MOUNTED CLEANING IS AVAILABLE FOR ANY TYPE OF FRAME.

AMERICAN OVERHEAD HANDLING EQUIPMENT

MONORAIL COMPANY

13121 ATHENS AVENUE • CLEVELAND 7, OHIO

★ *LET AN AMERICAN MONORAIL ENGINEER GIVE YOU ALL THE FACTS ON SAVINGS AND ADVANTAGES OF TRI-RAIL CLEANING.*

Easy application of fast colors with Du Pont *Capracyl** dyes for wool

The essentially neutral dyeing, metalized Du Pont "CAPRACYL" colors are applied to wool in a short dyeing cycle. They require little or no chemical aids for exhaustion. This means you benefit from savings in time, chemicals, and labor. And the natural strength, beauty, and resiliency of the wool fibers are protected.

Du Pont "CAPRACYL" dyes offer a combination of good wet fastness and excellent light fastness. You'll find them ideal for worsted men's wear, sportswear, auto upholstery, and carpets, and many other fabrics where exposure to light is an important factor.

Even on "tippy" wool, the "CAPRACYL" dyes cover and penetrate well . . . produce level dyeings with proper application methods.

Du Pont has prepared a booklet, "THE 'CAPRACYL' DYES," with technical information on the properties and dyeing characteristics of these new dyes. For your copy . . . or for help on *any* dyeing problem . . . write E. I. du Pont de Nemours & Co. (Inc.), Dyes and Chemicals Division, Wilmington 98, Del.

*REG. U. S. PAT. OFF.

DU PONT
REG. U. S. PAT. OFF.

Du Pont Dyes

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

NU-FILM

Having weaving troubles? With your present miracle fibers? Or with new complicated blends or styles?

You can make it easy for yourself by using a National 'miracle warp size.'

MIRACLE

FOR MIRACLE FIBERS

WARP SIZE

NU-FILM has more affinity for today's complicated blends than any other size. It'll produce a smooth, tough film on most miracle fiber blends.

You'll find NU-FILM easy to remove. Its soluble groups speed thorough rinsability—usually with only soap and water.

We'll welcome an opportunity to work with you.
National Starch Products Inc., 270 Madison Avenue, New York 16, N. Y.

National
STARCH PRODUCTS

Please Send Us!

- ☐ Nu-Film _____ lbs. for trial run
- ☐ Nu-Film laboratory sample
- ☐ Nu-Film Technical data
- ☐ National representative to arrange for a Nu-Film trial

Name _____ Title _____

Company _____

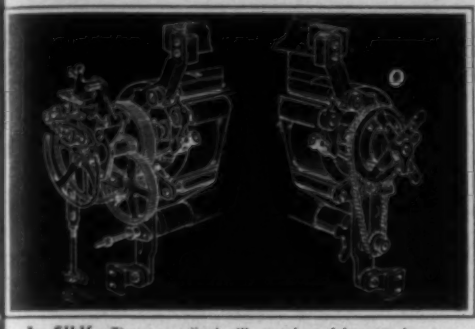
Address _____

City _____ Zone _____ State _____

No.4 in a series explaining

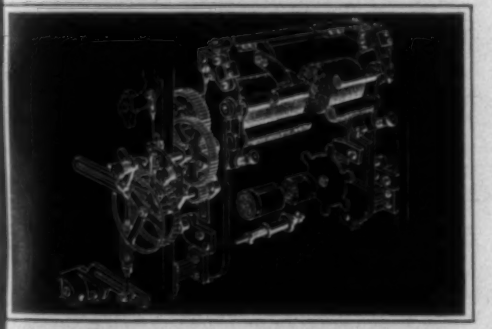
Why C&K's New Multi-Purpose Looms mean More Profit to any mill

Regardless of the type of M-P Loom you buy, C&K offers a type of takeup which is suitable for the fabrics you will weave. These include:



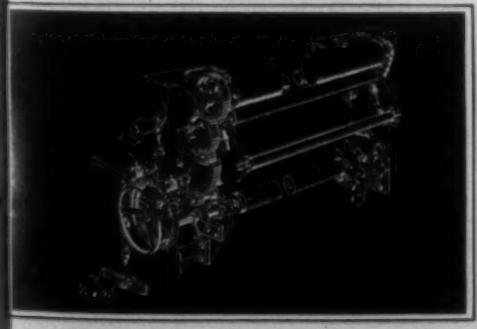
1. SILK: The so-called silk ratchet-driven takeup is normally used in producing high-pick filament and silk fabrics of finest texture.

31½" circumference takeup roll. Winding-up roll accommodates 11¾" diameter roll of cloth.



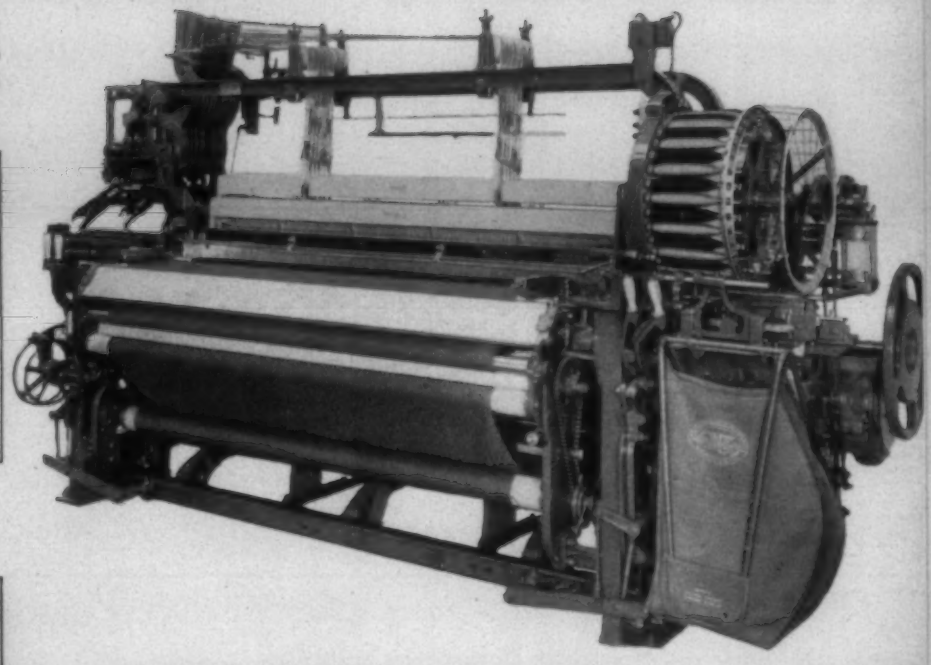
2. LOW ROLL: The low-roll ratchet-driven takeup is normally used in the medium pick range for fabrics such as cottons, blends and coarser synthetics.

20" circumference takeup roll. Winding-up roll accommodates 17½" diameter roll of cloth.



3. ALL PURPOSE: The all-purpose takeup is either of the positive reverse worm or ratchet-driven type, depending on the shedding mechanism and weaving requirements. This type of takeup is normally used for blends, woolens, worsteds and fabrics requiring a heavy beat-up.

15¾" circumference takeup roll. Winding-up roll accommodates 17½" diameter roll of cloth.



What is more, any one of these three takeups can be replaced by either one of the other two at a later date, with minimum effort and expense, if style trends make it advisable. This is another exclusive feature of C&K's new M-P Looms, as shown in the check chart.

So see C&K *without delay* for the exact type of M-P Looms best suited to *your* operation.

THESE NEW M-P FEATURES CONTRIBUTE → TO THESE PROFIT FACTORS

	Better Quality	Increased Work Assignments	Increased Production (Speed x Efficiency)	Lower Maintenance	Versatility
Rotary Magazine: For single color, or for multiple-color work (up to 4)	✓	✓	✓	✓	✓
Scissors Thread Cutter	✓	✓	✓	✓	✓
Vacuum Filling Control	✓	✓	✓	✓	✓
Cone Picking		✓	✓		✓
More Rugged Basic Frame: Common to all M-P Looms.		✓	✓		✓
Letoffs: New compositor type. Also other standard and special types.		✓	✓	✓	
Takeups: All purpose, silk, or lower winding roll.	✓	✓		✓	✓
Lay: Precision-built and convertible — 1x1, 2x1, 4x1, 4x2, and 4x4	✓			✓	✓
Shedding Mechanisms: Knowles Head — 25 Harness, 4/10" Space Knowles Head — 20 Harness, 1/2" Space Dobby — 20 Harness, 15/32" Gauge Undercam Jacquard	✓	✓			✓
Feelers: As required.	✓	✓	✓	✓	✓
Driving & Shipping	✓	✓	✓		
PRECISION, STRENGTH, SIMPLICITY Throughout Every M-P Loom				✓	✓

Crompton & Knowles
LOOM WORKS
WORCESTER 1, MASSACHUSETTS, U. S. A.

Charlotte, N. C. • Philadelphia, Pa. • Allentown, Pa.
Crompton & Knowles Jacquard & Supply Co., Pawtucket, R. I.
Crompton & Knowles of Canada Limited, Montreal, Quebec

A view of the sizing and quetsch unit of the new pilot plant slasher assembly.

NEW PILOT PLANT SLASHER ASSEMBLY HELPS SOLVE TEXTILE PRODUCTION PROBLEMS

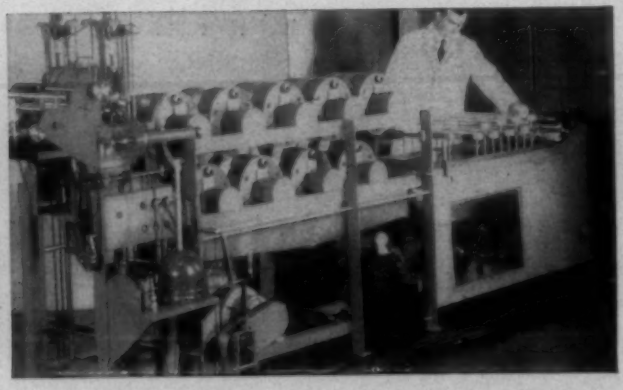
To supply the textile industry with up-to-the-minute factual information concerning starch sizes a highly integrated pilot assembly is in operation in an important research institution.

This project is tremendously effective in the study of sizing of all types of natural and synthetic yarn manufactured from either staple fibers or continuous filaments. The flexibility of this entire assembly allows an approach to textile production problems from either a research or technical point of view.

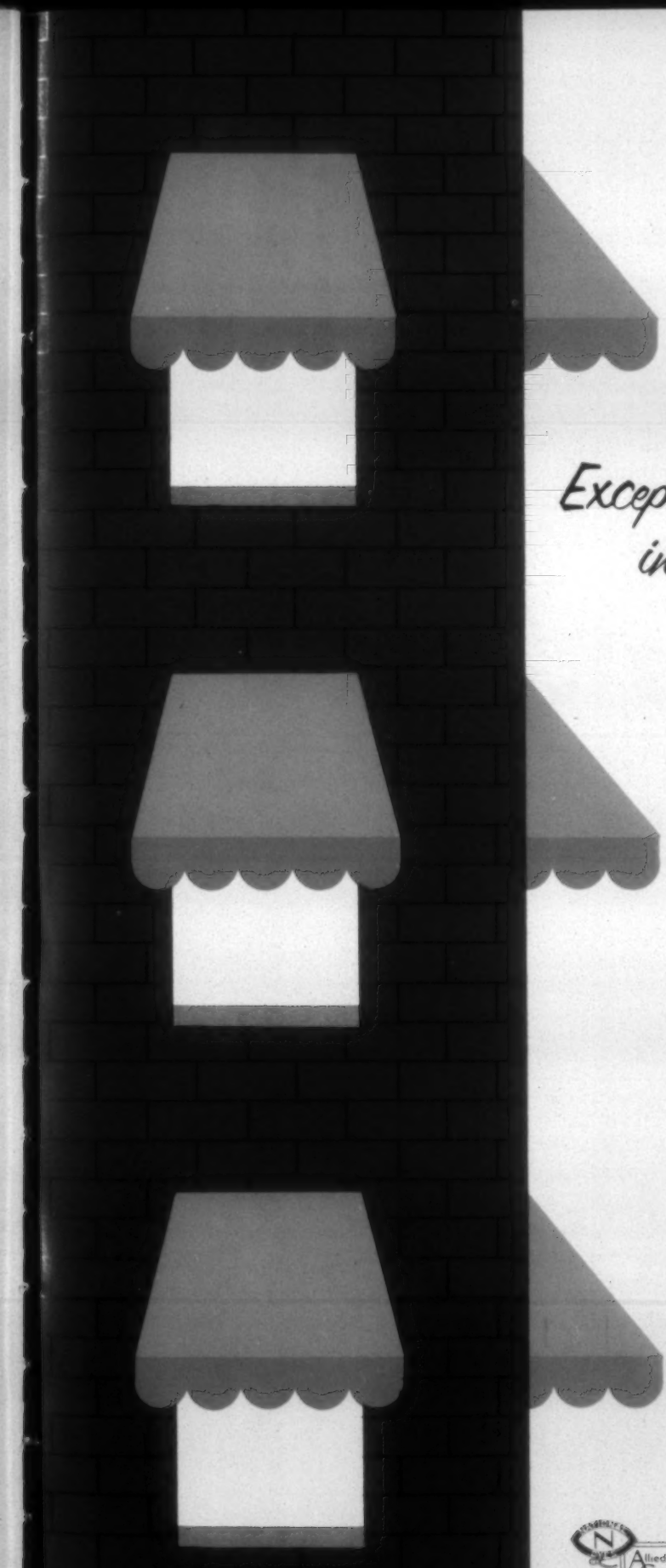
This work is sponsored by the Multiple Fellowship program of Corn Products Refining Company. An interesting full-color brochure on this operation is available. Write today for your copy.

Corn Products Refining Company
17 Battery Place, New York 4, N. Y.

Major components of the entire slasher assembly are shown in the above photo.



Another view of the highly flexible pilot plant slasher assembly. Note duplicate control panel by size unit.



Exceptional all-around fastness in a vat yellow

NATIONAL CARBANTHRENE YELLOW 3R PASTE

Those 8 words summarize the story of this unusual National anthraquinone vat dye. On cotton or rayon, it produces very reddish shades of yellow with excellent fastness to light, washing, boiling soap, stoving, chlorine and peroxide bleaching, mercerizing and cross dyeing. So it gives excellent results on fabrics that will be subjected to sun and weather, severe laundering and hard usage.

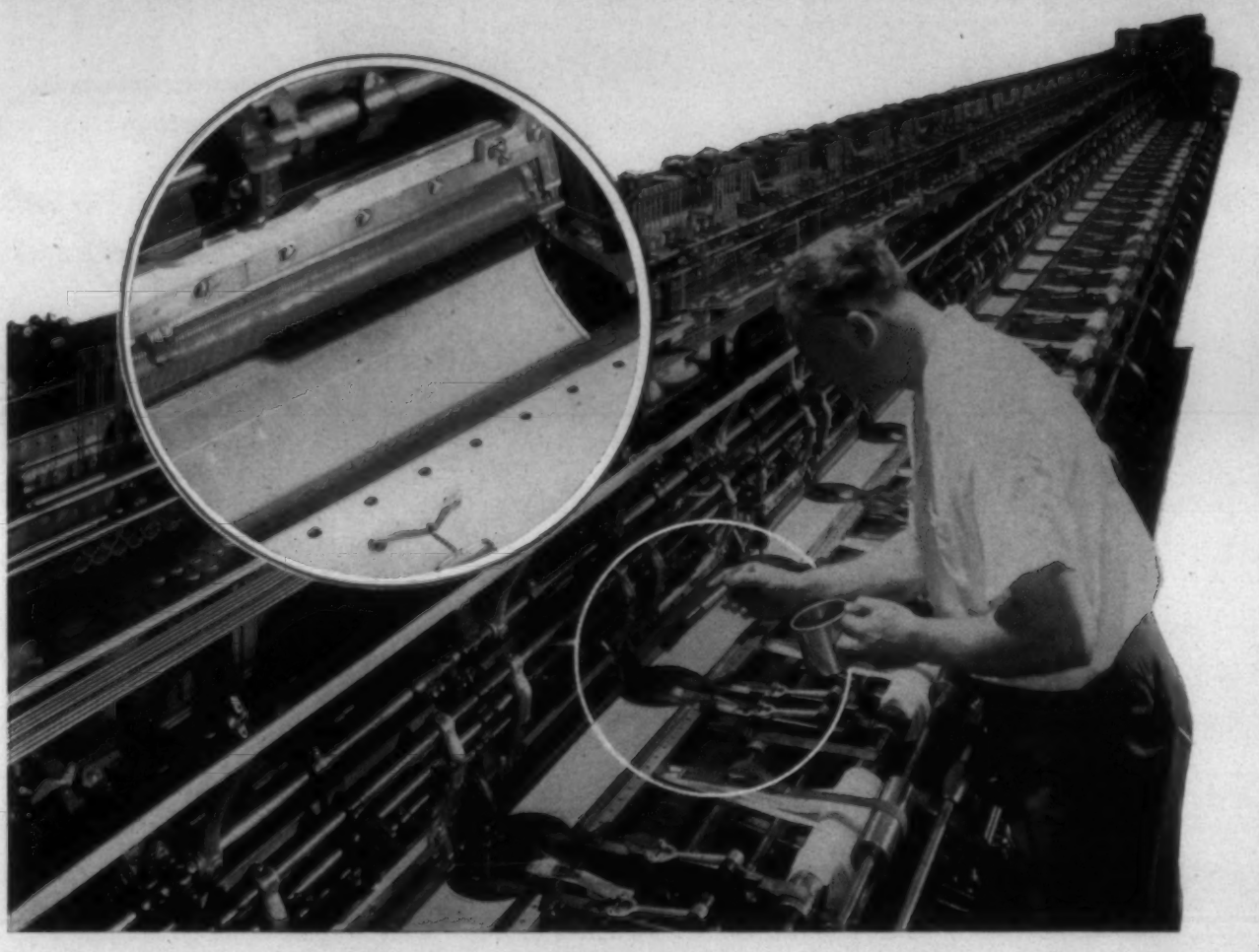
NATIONAL CARBANTHRENE YELLOW 3R PASTE can be dyed by all the usual dyeing procedures in all types of dyeing equipment. It is unaffected by the presence of metals in the dye bath, little affected by resin finishes or rubberizing.

Our nearest office will be glad to supply samples, technical bulletin, shade card and prices.

NATIONAL ANILINE DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.

Boston Providence Philadelphia Chicago San Francisco
Portland, Ore. Greensboro Charlotte Richmond Atlanta
Los Angeles Columbus, Ga. New Orleans Chattanooga Toronto

Allied Chemical



For smoother knitting and fewer seconds use non-staining

GULFTEX OIL

Full-fashioned hosiery mills using Gulftex Oil report that it keeps needles clean and smooth, thus contributing to smoother knitting with fewer seconds.

Gulftex Oil also resists gumming and aids in the prevention of buildup of size on the needles. And its superior non-staining characteristics make it a valuable lubricant for any application where the staining of fabrics is a problem. It is easily applied with spray or brush.

Make your next order for needle oil an order for more effective lubrication by specifying Gulftex. Call your nearest Gulf office and have a Gulf Sales Engineer demonstrate the advantages of Gulftex Oil in your mill. Gulf Oil Corporation · Gulf Refining Company, 1822 Gulf Building, Pittsburgh 30, Pennsylvania.

GULF

The finest petroleum products for your every need

Thanks to you, our licensees . . . 1954 was the largest year in "Sanforized" history

(turn page please)

Thanks to you, our licensees...

ARGENTINA

FABRICA ARGENTINA DE ALPARGATAS S.A.I.C. — Buenos Aires

AUSTRALIA

AUSTRAL SILK & COTTON MILLS PTY. LIMITED — Melbourne
BRADFORD COTTON MILLS LIMITED — "Bradmil House," Camperdown, Sydney, N.S.W.

AUSTRIA

CARL GANAHL & CO. — Feldkirch
F. M. HAEMMERLE — Dornbirn
POTTENDORFER SPINNEREI UND FELIXDORFER WEBEREI A. G. — Vienna

BELGIUM

ALSBERGE & VAN OOST, S.A. — Gand
Subsidiaries: Teintureries Belges — Renaix
S. A. Anciennes Usines De Bacher De Rudder — Ghent
ETABLISSEMENTS TEXTILES FERNAND HANUS S.A. — Gand
VETEX S.A. — Courtrai

BRAZIL

SAO PAULO ALPARGATAS, S.A. — Sao Paulo
COMPANHIA AMERICA FABRIL — Rio de Janeiro
COTONIFICIO RODOLFO CRESPI, S.A. — Sao Paulo
CIA. JAUENSE DE FIACAO S.A. — Sao Paulo
S. A. INDUSTRIAS REUNIDAS F. MATARAZZO — Sao Paulo
COTONIFICIO DA TORRE, S.A. — Recife
FABRICA DE TECIDOS CARLOS RENAUX, S.A. — Brusque, Santa Catarina

CANADA

CANADIAN COTTONS LIMITED — Montreal, Que.
DOMINION TEXTILE COMPANY, LTD. — Magog, Que.
MONTREAL COTTONS LIMITED — Valleyfield, Que.
ROBINSON COTTON MILLS, LIMITED — Toronto, Ont.
WABASSO COTTON COMPANY, LTD. — Three Rivers, Que.
WOODS MFG. CO., LTD. — Welland, Ont.

CHILE

TEJIDOS CAUPOLICAN, S.A. — Concepcion

COLOMBIA

TEJIDOS EL CONDOR, S.A. — Medellín
COMPANIA COLOMBIANA DE TEJIDOS — Medellin
FABRICA DE HILADOS Y TEJIDOS DEL HATO, S.A. — Medellin
TEJIDOS UNICA, S.A. — Manizales

CUBA

COMPANIA TEXTILERA ARIGUANABO, S.A. — Havana

DENMARK

BLOCH & ANDRESEN — Copenhagen
AKTIESELSKABET DE FORENEDE TEXTILFABRIKKER I. AALBORG — Aalborg
A/S GRENAA DAMPVAEVERI — Grenaa
A/S VEJLE TEXTILFABRIK C. MULLER — Vejle

EIRE

SETFAST LIMITED — Dublin

FINLAND

OY FINLAYSON-FORSSA AB — Tammerfors
VAASAN PUUVILLA OY—VASA BOMULL AB — Vasa
AB. BJORNEBORGS BOMULL — Bjorneborg
TAMMERFORS LINNE-OCH JERN-MANUFAKTUR AKTIE-BOLAG — Tampere

FRANCE

BLANCHIMENT, TEINTURE, IMPRESSION BOISSIERE FILS — Rouen
BLANCHISSERIE ET TEINTURERIE DE CAMBRAI — Cambrai
ETABLISSEMENTS RICHARD FRERES — Cholet
ETABLISSEMENTS GAILLIARD & CIE — Barentin
GILLET-THAON — Paris
TEINTURERIE, APPRETS GRASSIN DELYLE — Malaunay (Seine-Inf.)
GUERRY-DUPERAY & FILS — Roanne
MANUFACTURES HARTMANN & FILS — Munster (Ht.-Rhin)
LAINE FRERES — Rouen
TEINTURERIE G. ROQUETTE — Wasquehal
ETABLISSEMENTS SCHAEFFER & CIE — Pfastatt-le-Chateau (Ht.-Rhin)
SOCIETE ANONYME BLANCHISSERIE & TEINTURERIE DE CAUDRY — Ile Saint-Denise
SOCIETE ANONYME DE BLANCHIMENTS TEINTURES ET IMPRESSIONS — Lyon
SOCIETE GENERALE DES FILATURES ET TISSAGES DE FLERS — Flers
SOCIETE DES TEXTILES FRANCAIS — Paris
TEXTILE DU VERMANDOIS — Laval

FRENCH MOROCCO

INDUSTRIE COTONNIERE DE MAROC "ICOMA" S.A. — Fédala
LARCHER & CIE — Casablanca

FRENCH WEST AFRICA

INDUSTRIE COTTONIERE AFRICAINE "ICOTAF" S.A. — Dakar

GERMANY

GEBR. BOEGGERING, G.M.B.H. — Bocholt
GEBR. BURKHARDT — Pfullingen/Württ
MECH. BUNTWEBEREI BRENNET — Brennet
DRUCKEREI & APPRETUR BROMBACH A. G. — Brombach
M. VAN DELDEN & CO. — Gronau
CHRISTIAN DIERIG A. G. — Augsburg
BAUMWOLLINDUSTRIE ERLANGEN-BAMBERG A. G. — Erlangen
AUGUST GEIGER, KOMM. GES. — Kirchheim-Teck
ULRICH GMINDER, G.M.B.H. — Reutlingen
KOLB & SCHUELE A. G. — Kirchheim-Teck
VEREINIGTE WEBEREI SALZGITTER-STADTOLDENDORF (Wm. Kübler) — Stadtoldendorf
MARTINI & CIE — Augsburg
NIEHUES & DUETTING — Nordhorn
HEINRICH OTTO & SOEHNE — Wendlingen
SPINNEREI UND WEBEREI PFERSEE A. G. — Augsburg
LUDWIG POVEL & CO. — Nordhorn
TEXTILAUSRUESTUNG & DRUCKEREI PRINZ A. G. — Augsburg
J. SCHRUNDER & SOHNE — Greven
BLEICHEREI, FAERBEREI & APPRETUR-ANSTALT UHINGEN, A. G. — Uhingen
GEBRUEDER WENDLER G.M.B.H. — Reutlingen
AUSRUESTUNG AN DER WIESE G.M.B.H. — Brombach
HERMANN WINDEL, G.M.B.H. — Windelsbleiche
F. A. KUMPERS — Rheine an der Ems
MULFORTER ZUEGDRUCKEREI UND FARBEREI — Rheydt-Mülfort
B. RAWE & CO. — Nordhorn
G. SCHUEMER & CO. — Schuttorf/Hann
WEBER & OTT AKTIENGESELLSCHAFT — Forchheim/Oberfranken

GREAT BRITAIN

BLEACHERS' ASSOCIATION LIMITED — Blackfriars House, Parsonage, Manchester 3
In Ten Branches as Follows:
A. C. Bealey & Son Ltd. — Radcliffe, Lancs.
T. R. Bridson & Sons Ltd. — Bolton Bleachworks, Bolton
Carey McClellan & Co., Ltd. — Ardmore Bleach Works, Londonderry, Northern Ireland
Eden & Thwaites, Ltd. — Edgeley Bleachworks, Stockport, Cheshire
Kirkpatrick Bros., Ltd. — Ballyclare, County Antrim, Northern Ireland
J. McHaffie & Son Ltd. — Kirktonfield, Neilston (near Glasgow), Scotland
River Etherow Bleaching Co., Ltd. — Hollingworth, Manchester
John Stanning & Son Ltd. — Leyland Bleachworks, Leyland, Preston
Sykes & Co. Ltd. — Edgeley Bleachworks, Stockport, Cheshire
John Whitehead of Elton Ltd. — Radcliffe Bleach Works, Radcliffe, nr. Manchester
BRADFORD DYERS' ASSOCIATION, LTD. — 39 Well Street, Bradford
In Five Branches as Follows:
Ashenhurst Dyeing Co., Ltd., Ashenhurst Works — Blackley
John & Henry Bleackley Ltd. — Myrtle Grove, Prestwich
Adam Hamilton & Sons, Ltd., Blacklandmill — Paisley, Scotland
Lowmoor & Water Lane Ltd., Woodroyd Dye Works — Low Moor
Standish Co. Ltd. — Worthington nr. Wigan
J. CHADWICK & CO., LTD. — Springbrook Works, Oldham, Lancs.
CLIFTON MILLS, LIMITED — Poolstock Mills, Wigan, Lancs.
DEAKINS, LIMITED — Egerton Dye Works, nr. Bolton
DROMONA & MAINE LIMITED — Cullybackey, County Antrim, Northern Ireland
GLEN MILLS (COLNE) LIMITED — 2/4 Fountain St., Manchester 2
P. W. GREENHALGH & CO., LTD. — Ogden Mill, New Hey (nr. Rochdale) Lancs.
GROVE DYEING CO., LTD. — Littleborough, Lancs.
J. J. HADFIELD, LTD. — Garrison Bleach & Dye Works, Birch Vale
J. MANDLEBERG & CO., LTD. — Albion Works, Pendleton, Salford 6, Lancs.
THE PIN CROFT DYEING AND PRINTING CO., LTD. — Adlington, Lancs.
RAINSHORE BLEACHING & DYEING CO., LTD. — Norden, Lancs.
STEVENSON & SON, LTD. — Dungannon, Northern Ireland
TURNBULL & STOCKDALE LTD. — Rosebank Print Works, Ramsbottom, nr. Manchester
JOHN WALTON OF GLOSSOP, LTD. — Hollingworth, Cheshire
DAVID WHITEHEAD & SONS, LTD. — Lower Mill, Rawtenstall
YORKSHIRE DYEING & PROOFING COMPANY, LTD. — Spring Vale Works, Middleton, Lancs.
YORK STREET FLAX SPINNING CO., LTD. — Belfast, Northern Ireland

HOLLAND

BLIJDENSTEIN & CO., N. V. — Enschede
BOEKELOSCHE STOOMBLEEKERIJ N. V. — Boekelo
VAN HEEK & CO., N. V. — Enschede
KONINKLIJKE STOOMWEVERIJ TE NIJVERDAL N. V. — Almelo
N. V. NEDERLANDSCHE STOOMBLEEKERIJ — Nijverdal
J. F. SCHOLTEN & ZONEN N. V. — Enschede
N. V. STOOM-SPINNERIJEN EN WEVERIJEN V.H.S.J. SPANJAARD — Borne

INDIA

BINNY & CO. (MADRAS) LTD. — Madras
In Plants as Follows:
The Bangalore Woollen, Cotton & Silk Mills Co., Ltd. — Bangalore 2, Mysore
The Buckingham & Carnatic Co., Ltd. — Madras
THE ARVIND MILLS, LTD. — Ahmedabad
SHRI AMBICA MILLS LTD. — Ahmedabad
AHMEDABAD MANUFACTURING & CALICO PRINTING CO., LTD. — Ahmedabad
KOHINOOR MILLS COMPANY LTD. — Bombay
SARANGPUR COTTON MANUFACTURING CO., LTD. — Ahmedabad
THE NEW SHORROCK SPG. & MFG. CO., LTD. — Nadiad, Bombay State
ROHIT MILLS LIMITED — Ahmedabad
THE AHMEDABAD JUPITER WVG. & MFG. CO., LTD. — Ahmedabad
THE ARYODAYA GINNING & MFG. CO. LTD. — Ahmedabad
THE NEW COMMERCIAL MILLS CO., LTD. — Ahmedabad

ISRAEL

KURDANEH TEXTILE WORKS, LTD. — c/o "Ata" Textile Co., Ltd., Haifa

ITALY

COTONIFICIO CANTONI — Legnano
MANIFATTURA BERNARDO CAPROTTI — Albiate

TINTORIA COMENSE S.A.	Como
PRIMO FASOLA S.P.A.	Milano
COTONIFICIO FELICE FOSSATI S.P.A.	Monza
COTONIFICIO LEGLER S.A.	Bergamo
MANIFATTURE COTONIERE MERIDIONALI	Napoli
REGGIANI MANIFATTURA, S.A.	Bergamo
TEXTILOSES & TEXTILES S.A.	Milano
MANIFATTURA TOSI	Busto Arsizio
UNIONE MANIFATTURE S.A.	Parabiago
COTONIFICIO VALE DI SUSA	Torino

JAPAN

TOYO SPINNING CO., LTD.	Osaka
KANEGAFUCHI SPINNING CO., LTD.	Osaka
NISSHIN COTTON SPINNING CO., LTD.	Tokyo
KUREHA SPINNING CO., LTD.	Osaka
TOYO SEN-I CO., LTD.	Tokyo
FUJI SPINNING CO., LTD.	Tokyo
HAMAGUCHI DYEING WORKS, LTD.	Kyoto
ICHISHIN BLEACHING CO., LTD.	Osaka, Pref.
YAMATOGAWA DYEING WORKS, LTD.	Sakai, Osaka
DAIDO DYEING COMPANY, LTD.	Kyoto
KURASHIKI COTTON SPINNING CO., LTD.	Osaka
NITTO SPINNING CO., LTD.	Tokyo

LEBANON

ARIDA BROTHERS CORPORATION	Tripoli, Lebanon

MEXICO

ACABADOS MEXICO, S.A.	Tlalpan, Mexico, D.F.
ATOYAC TEXTIL, S.A.	Puebla, Puebla
CIA. INDUSTRIAL TEXTIL ANAHUAC, S.A.	Puebla, Puebla
CIA. INDUSTRIAL MANUFACTURERA DE ATLIXCO, S.A.	Atlixco, Puebla
CIA. INDUSTRIAL DE PARRAS, S.A.	Parras, Coahuila
CIA. INDUSTRIAL DE SAN ANTONIO ABAD, S.A.	Mexico, D.F.
CIA. INDUSTRIAL VERACRUZANA, S.A.	Ciudad Mendoza, Ver.
EL GLOBO, S.A.	Atzcapotzalco, Mexico, D.F.
ELSA, S.A.	Coyoacan, Mexico, D.F.
LA CAROLINA Y REFORMA, S.A.	Mexico, D.F.
NACIONAL TEXTIL MANUFACTURERA, S.A.	Guadalajara, Jalisco
TEXTILES MONTERREY, S.A.	Monterrey, N. L.

NORWAY

TEKSTILFOREDLING A/S-TEFAS	Oslo
A/S DALE FABRIKKER	Bergen

PERU

COMPANIAS UNIDAS VITARTE, VICTORIA, INCA, S.A.	Lima
FABRICA DE TEJIDOS "LA UNION" LTDA.	Lima

SOUTH AFRICA

BERG RIVER TEXTILES LIMITED	Cape Town

SOUTHERN RHODESIA

DAVID WHITEHEAD & SONS (RHODESIA) LIMITED	Hartley

SPAIN

SOBRINOS DE JUAN BATLLO S.A.	Barcelona
FIBRACOLOR, S.A.	Barcelona
VIUDA DE JOSE TOLRA, S.A.	Barcelona
COMMERCIAL ANONIMA VILA	Barcelona

SWEDEN

ALINGSAS BOMULLSVAFVERI AKTIEBOLAG	Alingsas
BORAS WAEFVERI AKTIEBOLAG	Boras
GAMLESTADENS FABRIKERS AKTIEBOLAG	Goeteborg
GEFLE MANUFAKTUR AKTIEBOLAG (Hargskoncernen)	Stroemsbro
MANUFAKTUR AKTIE BOLAGET I MALMOE	Malmoe
MOELNLYCKE VAEFVERIAKTIEBOLAG	Goeteborg
NORRKOEPINGS BOMULLSVAEFVERI A. B.	Norrkopings

SWITZERLAND

AKTIENGESELLSCHAFT CILANDER	Herisau
A. G. FEHLMANN SOEHNE	Schoftland
GUGELMANN & CO., A.G.	Langenthal
HABIS-TEXTIL A. G.	Flawil
HEBERLEIN & CO., A. G.	Wattwil
AKTIENGESELLSCHAFT A. & R. MOOS	Weisslingen
R. MUELLER & CIE. A. G.	Seon
RADUNER & CO., A. G.	Horn
STOFFEL & CO.	St. Gallen
AKTIENGESELLSCHAFT CARL WEBER	Winterthur

UNITED STATES

ALABAMA MILLS, INC.	Wetumpka, Ala.
AMERICAN FINISHING COMPANY	Memphis, Tenn.
THE APPONAUG COMPANY	Apponaug, R. I.
ARISTA MILLS CO.	Winston-Salem, N. C.
ARMS TEXTILE MANUFACTURING CO.	Manchester, N. H.
ASPINOOK CORPORATION	Adams, Mass.
ASPINOOK CORPORATION	Jewett City, Conn.
AURORA BLEACHERY, INC.	Aurora, Ill.
AVONDALE MILLS	Alexander City, Ala.
AVONDALE MILLS	Pell City, Ala.
AVONDALE MILLS	Sylacauga, Ala.
JOS. BANCROFT & SONS CO.	Wilmington, Del.
BELLMAN BROOK BLEACHERY CO.	Fairview, N. J.
BRADFORD DYEING ASSOCIATION (USA)	Westerly, R. I.
BROWN MANUFACTURING CO.	Concord, N. C.
BURLINGTON MILLS CORP., Cramerton Mills Div.	Cramerton, N. C.
CANNON MILLS COMPANY	Kannapolis, N. C.
CANTON COTTON MILLS	Canton, Ga.
CHICOPEE MANUFACTURING CORPORATION	Chicopee Falls, Mass.
CLEARWATER FINISHING PLANT	Clearwater, S. C.
COLD SPRING BLEACHERY, INC.	Yardley, Pa.
CONE MILLS CORPORATION—Print Works Plant	Greensboro, N. C.
CONE MILLS CORPORATION—White Oak Plant	Greensboro, N. C.
CONE MILLS CORPORATION—Proximity Plant	Greensboro, N. C.
CONE MILLS CORPORATION—Revolution Division	Greensboro, N. C.
CONE MILLS CORPORATION—Salisbury Plant	Salisbury, N. C.
CONE MILLS CORPORATION—Minneola Plant	Gibsonville, N. C.
CONSOLIDATED TEXTILE CO.—Taunton Div.	Taunton, Mass.
CONSOLIDATED TEXTILE CO.—Windsor Print Div.	No. Adams, Mass.
CRANSTON PRINT WORKS COMPANY	Cranston, R. I.
CRANSTON PRINT WORKS COMPANY	Webster, Mass.
CRANSTON PRINT WORKS COMPANY	Fletcher, N. C.
CROMPTON-SHENANDOAH CO.	Waynesboro, Va.
CRYSTAL SPRINGS BLEACHERY	Chickamauga, Ga.
DAN RIVER MILLS, INCORPORATED	Danville, Va.
DEMPSEY BLEACHERY & DYE WORKS CORP.	Pawtucket, R. I.
ERWIN MILLS INCORPORATED	Cooleemee, N. C.
ERWIN MILLS INCORPORATED	Erwin, N. C.
ERWIN MILLS INCORPORATED	Stonewall, Miss.
EUREKA PRINTING CO., INC.	Clifton, N. J.
EXETER MANUFACTURING COMPANY	Exeter, N. H.
FAIRFOREST COMPANY—Eagle & Phenix Division	Columbus, Ga.
FAIRFOREST COMPANY—Fairforest Fin. Div.	Spartanburg, S. C.
FIELDCREST MILLS, INC.	Spray, N. C.
FRUIT OF THE LOOM, INC.—Pontiac Finishing Plant	Pontiac, R. I.
GLENLYON PRINT WORKS	Phillipsdale, R. I.
GOLD-TEX FABRICS CORP.—Mill Division	Rock Hill, S. C.
GOODALL-SANFORD, INC.	Sanford, Maine
GRANITEVILLE COMPANY—Gregg Division	Graniteville, S. C.
GRANITEVILLE COMPANY—Sibley-Enterprise Division	Augusta, Ga.
GREAT FALLS BLEACHERY & DYE WORKS, INC.	Somersworth, N. H.
HAMPTON MILLS, INC.	Easthampton, Mass.
HARTSVILLE PRINT & DYE WORKS	Hartsville, S. C.
HIGHLAND PARK MANUFACTURING CO.	Charlotte, N. C.
JEFFERSON MILLS	Jefferson, Ga.
KERR BLEACHING & FINISHING WORKS, INC.	Concord, N. C.
KING PHILIP FINISHING CO.	Lonsdale, R. I.
LANETT BLEACHERY & DYE WORKS	West Point, Ga.
LANE COTTON MILLS COMPANY (Div. M. Lowenstein & Sons)	New Orleans, La.
LOCKWOOD-DUTCHESS, INC.	Waterville, Me.
LOWELL BLEACHERY, INC.	St. Louis, Mo.
LOWELL BLEACHERY SOUTH	Griffin, Ga.
ANDREW Y. MICHIE & SONS CO.	Philadelphia, Pa.
THE MILLVILLE MANUFACTURING CO.	Millville, N. J.
MOORESVILLE MILLS	Mooresville, N. C.
NATIONAL DYEING & FINISHING CORP.	Culver City, Calif.
NEW BRAUNFELS TEXTILE MILLS	New Braunfels, Texas
NEWBURGH BLEACHERY	Newburgh, N. Y.
NEW YORK MILLS DIV. (A. D. Juilliard)	New York Mills, N. Y.
NORTH CAROLINA FINISHING COMPANY	Salisbury, N. C.
PACIFIC MILLS	Lyman, S. C.
PACOLET MANUFACTURING CO.	New Holland, Ga.
PEPPERELL MANUFACTURING COMPANY	Lewiston, Me.
PEPPERELL MANUFACTURING COMPANY	Lindale, Ga.
PEPPERELL MANUFACTURING CO.—Alabama Div.	Pepperell, Ala.
PILOT MILLS CO.	Raleigh, N. C.
PLYMOUTH FINISHING CO., INC.	Fall River, Mass.
PURITAN LOOMS, INCORPORATED	Philadelphia, Pa.
QUEEN PRINT WORKS, INC.	Providence, R. I.
THE RANDOLPH MILLS, INC.	Franklinville, N. C.
RENFREW BLEACHERY (The Abney Mills)	Travellers Rest, S. C.
RIEGEL TEXTILE CORPORATION—Ware Shoals Division	Ware Shoals, S. C.
RIEGEL TEXTILE CORPORATION—Trion Division	Trion, Ga.
ROANOKE MILLS COMPANY—Mill No. 1	Roanoke Rapids, N. C.
ROBERTSON BLEACHERY & DYE WORKS	New Milford, Conn.
ROCK HILL PRINTING & FINISHING CO.	Rock Hill, S. C.
THE ROCKLAND BLEACH & DYE WORKS CO.	Baltimore, Md.
THE RUSSELL MFG. CO., INC.	Alexander City, Ala.
SAYLES-BILTMORE BLEACHERIES, INC.	Biltmore, N. C.
SAYLES FINISHING PLANTS, INC.	Saylesville, R. I.
PHILIP L. SHEERR & SONS	Frankford, Philadelphia, Pa.
SLATERSVILLE FINISHING CO., (Division of Kendall Mills)	Slatersville, R. I.
SOUTHERN BLEACHERY & PRINT WORKS, INC.	Taylors, S. C.
THE SPRINGS COTTON MILLS (Grace Bleachery)	Lancaster, S. C.
STANDARD BLEACHERY & PRINTING CO., INC.	Carlton Hill, N. J.
J. P. STEVENS & CO., INC.—Cotton & Spun Fibers Div., Appleton Plant	Anderson, S. C.
J. P. STEVENS & CO., INC.—Delta Company Division	Cheraw, S. C.
J. P. STEVENS & CO., INC.—Industrial Cotton Mills Co. Div.	Rock Hill, S. C.
J. P. STEVENS & CO., INC.—Utica & Mohawk Cotton Mills Div.	Clemson, S. C.
J. L. STIFEL & SONS, INC.	Wheeling, W. Va.
SUMMERDALE DYE WORKS	Holmesburg, Phila., Pa.
SWIFT MANUFACTURING COMPANY	Columbus, Ga.
TEXAS TEXTILE MILLS	McKinney, Texas
TEXAS TEXTILE MILLS	Waco, Texas
TEXTRON INC.—Finishing Plant	Anderson, S. C.
THOMASTON MILLS—Beachery Div.	Thomaston, Ga.
UNCAS PRINTING & FINISHING CO., INC.	Mechanicsville, Conn.
UNION BLEACHERY	Greenville, S. C.
THE UNITED STATES FINISHING COMPANY	Norwich, Conn.
WERTHAN BAG CORPORATION	Nashville, Tenn.
WHITE BROTHERS, INC.	Winchendon Springs, Mass.
YATES BLEACHERY CO.	Fintstone, Ga.

URUGUAY

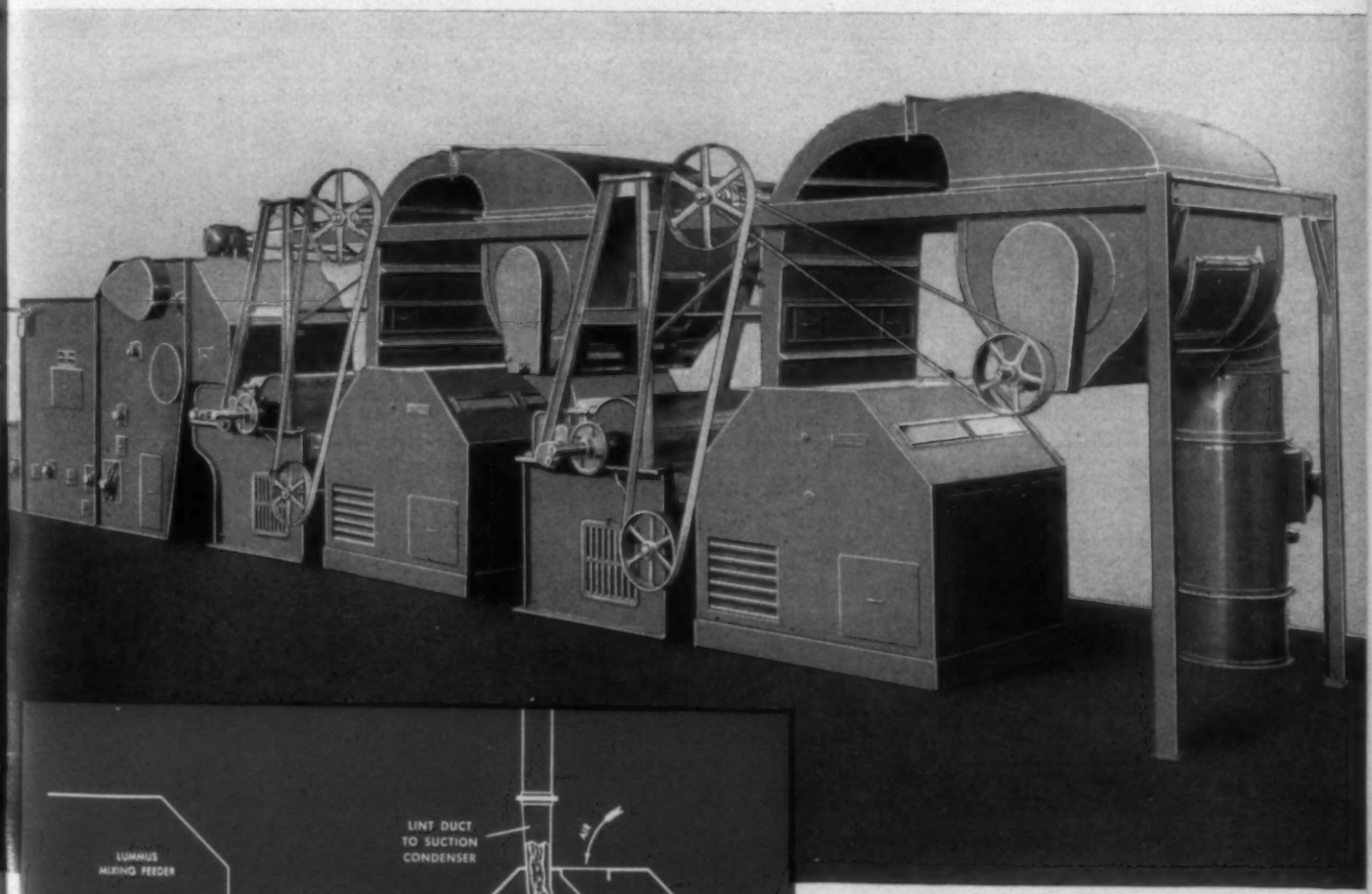
S. A. FABRICA URUGUAYA DE ALPARGATAS	Montevideo

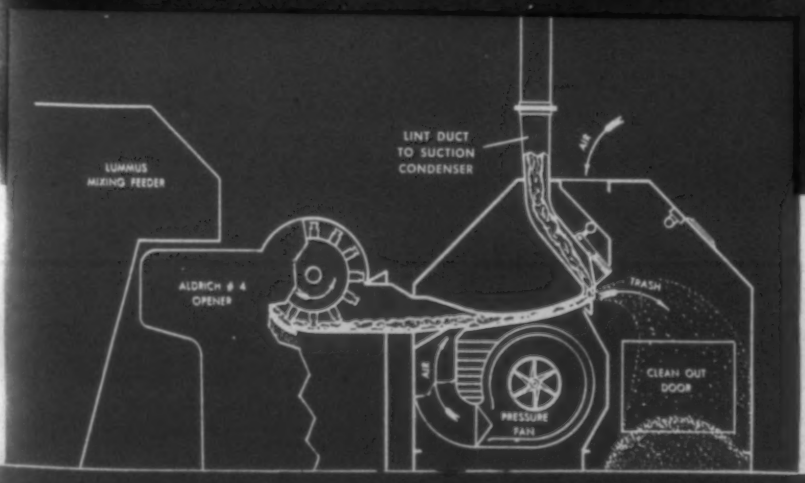
VENEZUELA

C. A. TELARES DE MARACAY	Maracay (Aragua)

To clean cotton it is desirable to take trash ***out whole.*** Merely breaking it up so fine that it is not noticeable in the sample will not keep it from showing in the yarn.

The *Super-Jet Cotton Cleaner* contains no saws or pin beaters to break up the trash to make neps and pepper. It cleans with air currents, and can not injure the lint or pulverize the foreign matter.





If you have not seen these machines in operation, we would like to show them to you.

ALDRICH-LUMMUS CLEANING SYSTEM

Made by LUMMUS COTTON GIN CO. Columbus, Ga. and ALDRICH MACHINE WORKS Greenwood, S. C.

Sold and Installed by Aldrich Machine Works Greenwood South Carolina

Stehedco

2100 W. ALLEGHENY AVE. · PHILADELPHIA 32, PA.

LOOM HARNESS

268 McDONOUGH BLVD. - ATLANTA 1, GA.

Southern

Qual

Serv

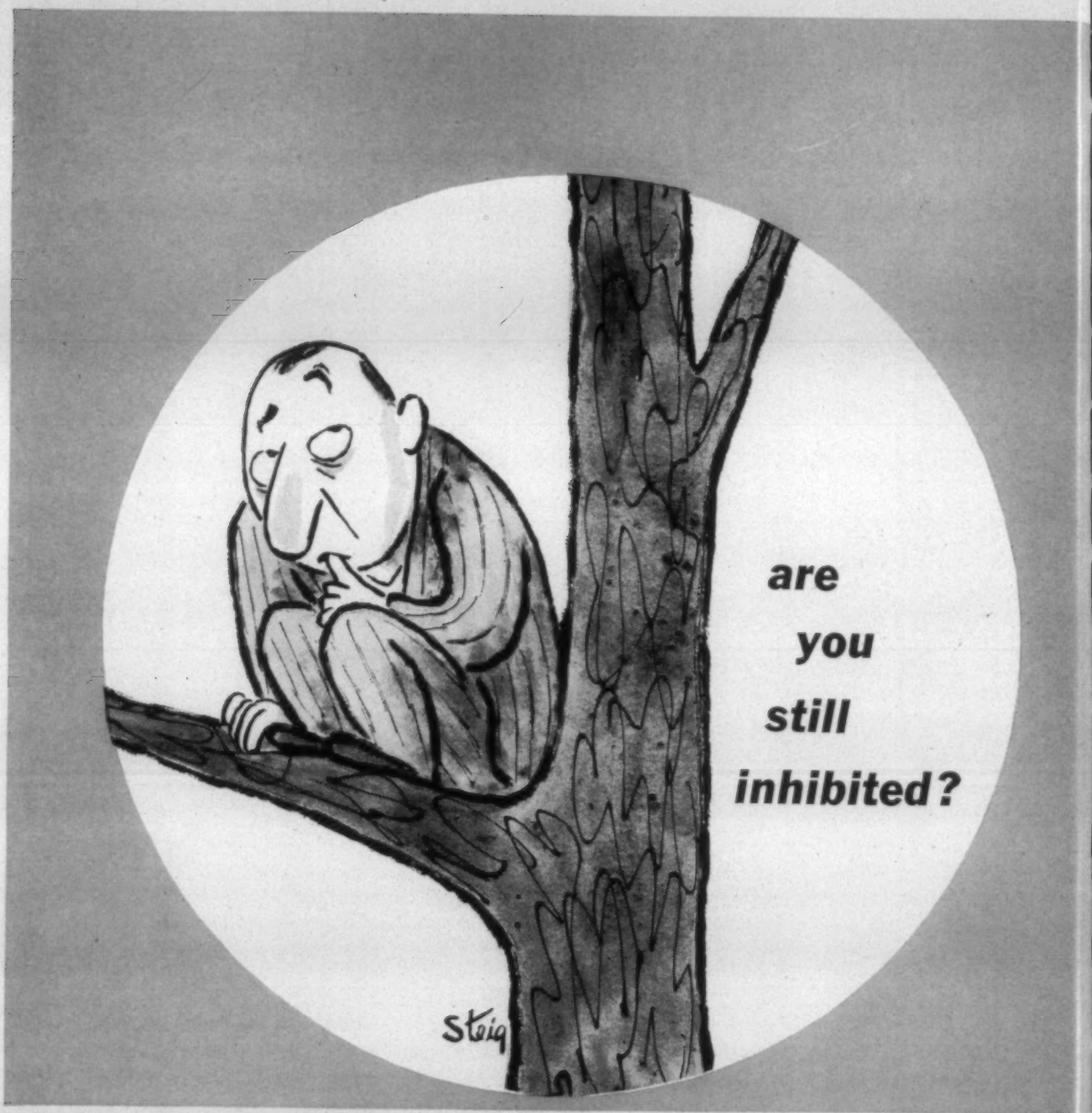
Stehedco and Southern
WORLD FAMOUS TRADE MARKS OF THE
Steel Heddle
Mfg. Co.

STEEL HEDDLE MFG. CO., 2100 W. Allegheny Ave., Phila. 32, Pa.

SOUTHERN SHUTTLES Paris Plant...Greenville, S. C.
A Division of STEEL HEDDLE MFG. CO.

STEEL HEDDLE COMPANY OF CANADA, LIMITED
310 St. Hubert Street • Granby, Quebec, Canada

Other Plants and Offices: Greenville, S. C. • Atlanta, Ga. • Greensboro, N. C. • Providence, R. I.
Textile Supply Co., Dallas, Texas • Albert R. Breen, Chicago, Ill.



'WILL PUT NEW LIFE IN YOUR PRODUCT

No matter what you're running, natural or synthetic fibers . . .

Get maximum lap resistance wi

Whether you're spinning natural or synthetic fibers, Armstrong J-490 Cots will give you top-quality yarn and maximum lap resistance, particularly on frames equipped with revolving clearers. Here's why:

J-490 Accotex cots actually tend to repel broken ends because their special synthetic rubber compound contains certain electrolytes that neutralize the electrical attraction between cots and fibers. The illustrations on the opposite page show how this happens.

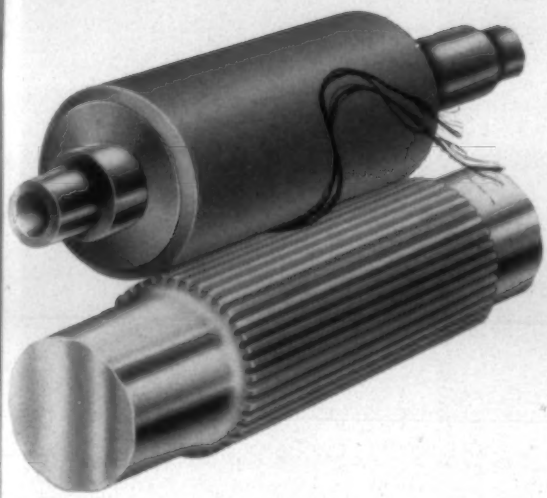
Fibers don't build up on the smooth surface of J-490 cots because the J-490 compound contains no fillers that can roughen the drafting surface. J-490 cots won't pull short fibers from the roving and cause excessive end breakage. The result is cleaner, more uniform yarn.

Of course, you'll get long service life with J-490 cots. Oils, dyes, and commonly used textile chemicals do not affect them. Re-buffing is seldom required more than once a year.

Send for booklet, "Armstrong Textile Roll Coverings and Mill Supplies." Gives suggestions on selection, installation, and maintenance of Armstrong Textile Products. Write Armstrong Cork Company, Industrial Division, 6502 Davis Avenue, Lancaster, Pennsylvania.

Armstrong ACCOTEX COTS

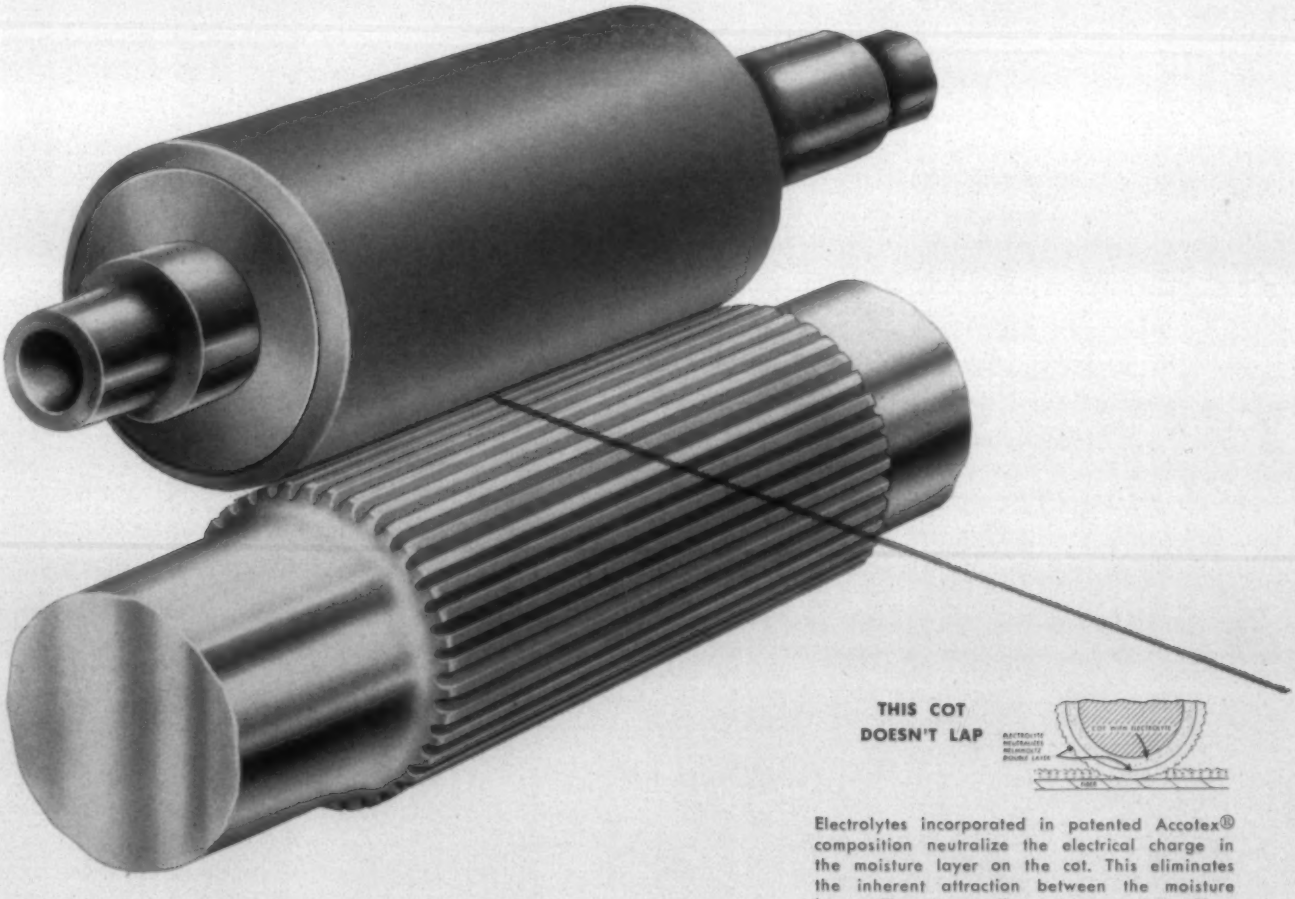
. . . used wherever performance counts



THIS COT LAPS

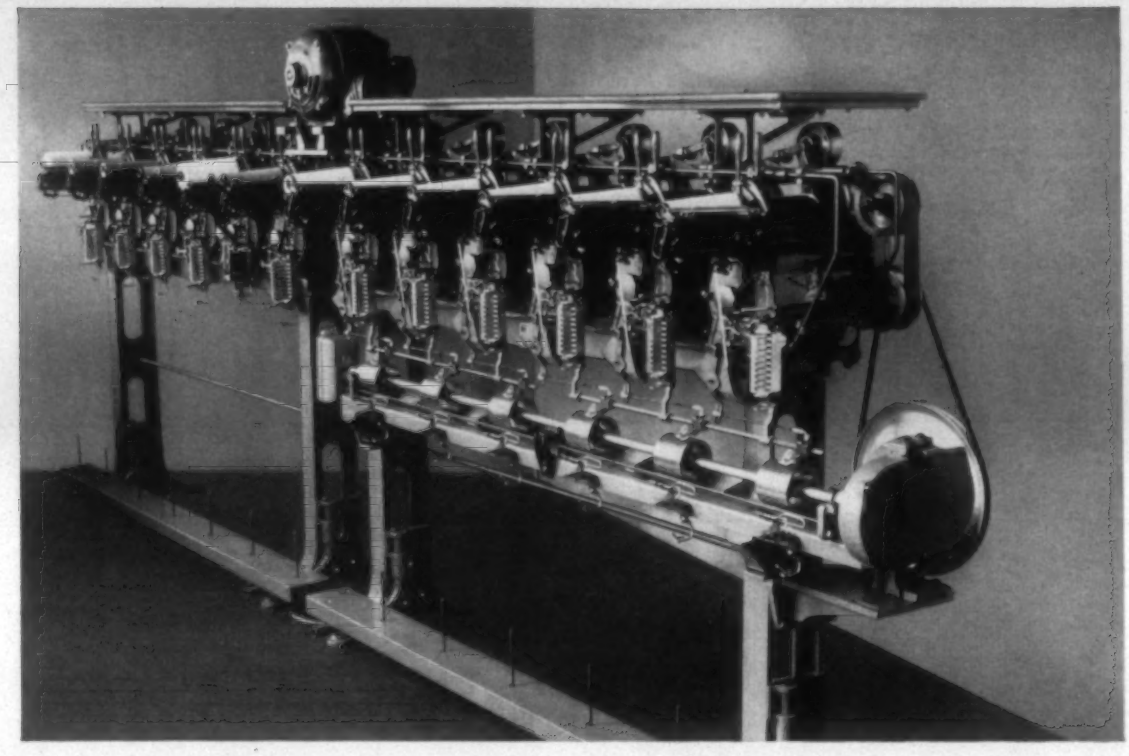
Moisture layers on fiber and cot contain electrical charges. When pressed together in spinning, these charged moisture layers tend to adhere to each other. When an end breaks, this attraction is strong enough to cause lapping.

e with J-490 Accotex cots



THIS COT DOESN'T LAP

Electrolytes incorporated in patented Accotex® composition neutralize the electrical charge in the moisture layer on the cot. This eliminates the inherent attraction between the moisture layers. The cot actually tends to repel the fiber.



World's Most Versatile Precision Winder – The Leesona No. 50

Designed to build the greatest variety of precision wound packages of natural and synthetic yarns, the Leesona No. 50 Winding Machine can be adapted to the changing requirements of any of these materials — and even of jute and paper. Shipping cones wound on the No. 50 contain the greatest weight of yarn in a given space, and the precise regularity of the wind adds valuable sales appeal to the compact packages.

Four New Performance-Improving Attachments

Vertical Tension Control allows independent adjustment of tension and pressure, providing more precise control from start to finish of package. Simple to operate, with calibrations making it easy to record settings for future use.

Free-Turning Roller Bail has ball bearings seated in bail holder, rather than in end of roll. This reduces bearing surface speed and lengthens bearing life. Sealed bearings, besides protecting yarn from oil absorption, need no further lubrication.

Automatic Quick-Doffing Arbor for dye cones and tubes. Contracts when starting handle is pushed, releases finished package easily. When handle is released, arbor expands automatically, to hold new carrier securely.

Soft Pressure Attachment winds filament yarn to a low density for uniform high pressure dyeing. Permits very close control over winding pressures and tensions, resulting in packages of correct density from each spindle.

Get further facts on the Leesona No. 50 — the flexible, all-purpose precision winder now winding a major percentage of the world's coned synthetic yarns and used by all leading thread mills. See your Universal Representative or write direct for bulletin.

UNIVERSAL WINDING COMPANY

P. O. Box 1605, Providence 1, Rhode Island

Boston • Philadelphia • Utica • Charlotte • Atlanta • Los Angeles • Montreal, Hamilton, Canada
Manchester, England • Paris, France • Basle, Switzerland

Agents in every principal textile center throughout the world
Winding and Twisting Machinery for Natural and Synthetic Yarns

CARDING IS THE FOUNDATION FOR QUALITY

NO. 14

TIPS ON CARD STRIPPING vs QUALITY WORK

1. A proper stripping schedule is highly important in your mill to maintain quality.

2. Quality frequently can be improved by increasing the number of strips per shift. Fortunately, however, the waste thus produced does not increase in the same proportion as the stripping cycle. For example, if strippings are increased from 2 to 3 per shift, the increase in number of strippings is 50%; however, the waste per strip will *decrease* about 30%.

3. Some mills running irigated cotton have found it necessary to strip 4 times in 8 hours rather than 3 times, to better control nep count. In such cases, while stripping was increased 33⅓%, total waste per 8 hour shift increased only 15% to 18%.

4. Stripping equipment and settings of that equipment — whether vacuum or brush — must be maintained at a very high standard of efficiency, so as to maintain quality of stripping and protect the card clothing. Such care results in maximum performance, especially when it becomes necessary to increase stripping cycle.

5. Some mills have increased their stripping cycle without benefit of quality and with damage to card clothing, by improper maintenance of stripping equipment, plus little or no supervision of actual stripping operation.

6. Suggested checks on Vacuum Stripping Equipment:

   A. Always have sufficient suction capacity to permit of stripping 4 to 6 cards at a time.

   B. Nozzles to cylinders and doffers should be set correctly.

   C. Nozzles set too far away will not strip properly.

   D. Nozzles set too close will permanently damage clothing — resulting in early shedding out of wire.

   E. Burred and rough nozzles will choke up, preventing a good stripping job.

   F. The traversing worm or screw should be kept free from impacted waste, so stripping head will travel freely across width of card.

   G. Keep stripping head and related mechanism securely fastened to doffer shrouds at all times.

please turn the page ➧

Ashworth
CARD CLOTHING

It's "Plough Ground"

All Ashworth cylinder and doffer fillets for processing cotton and many of the staple synthetic fibers are "plough ground". Plough grinding consists of running a "plough", with a thin grinding disc directly above it, between each row of fillet wire. Thus the wires or teeth are gradually tapered above the knee to a working point on each side. The front and back of the wire are not ground, so that strength in the carding direction is not sacrificed.

The advantages of plough grinding are as follows:—

1. The tapered points facilitate the untangling of the fibers and help to prevent and remove neps.

2. Plough ground wire strips more easily. Make your own test. Wrap yarn on the shaft of a pencil and attempt to remove it. The yarn piles up just as the fibers pile up on non-tapered wire. Make the same test on a tapered shaft and notice how easily the yarn comes off.

3. Plough ground card clothing retards loading, keeping the stock above the knee and in a carding position.

If you would like to see our plough grinding operation, visit us at Fall River, Mass. or Greenville, S. C.

PRODUCTS AND SERVICES

Card Clothing for Cotton, Wool, Worsted, Silk, Rayon and Asbestos Cards and for All Types of Napping Machinery, Brusher Clothing and Card Clothing for Special Purposes. Lickerin Wire and Garnet Wire. Sole Distributors for Platt's Metallic Wire. Lickerins and Top Flats Reclothed.

PRODUCED BY AMERICAN WORKERS

ASHWORTH BROS., INC.
American Card Clothing Co. (Woolen Division)

Fall River*†‡ Worcester‡ Philadelphia*†‡ Atlanta†‡
Greenville*†‡ Charlotte†‡ Dallas†‡ (Textile Supply Co.)

*Factory †Repair Shop ‡Distributing Point

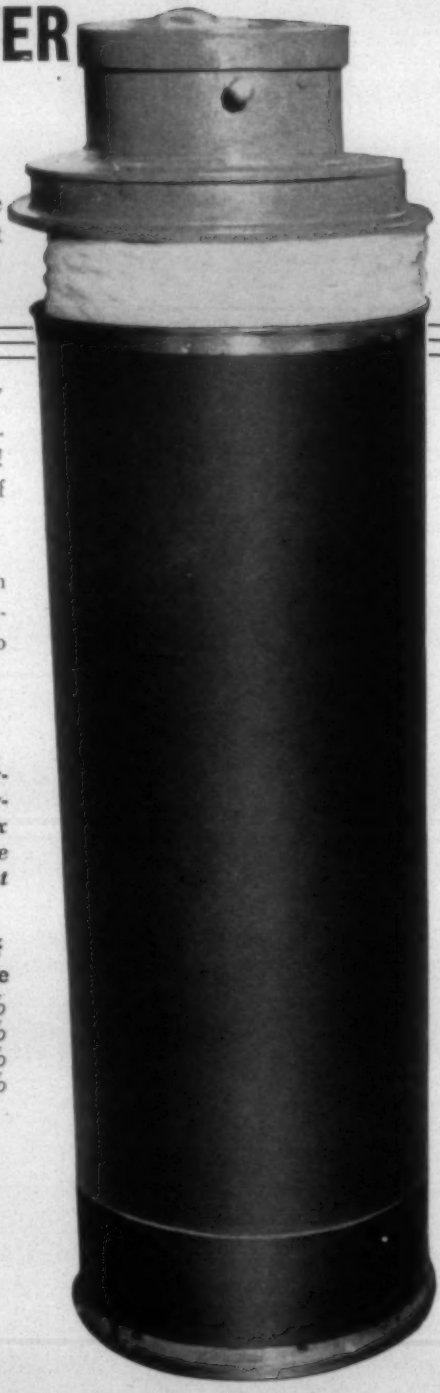
3 Factories — 6 Repair Shops — 7 Distributing Points

Here's how you can

INCREASE the AMOUNT of SLIVER

in coiler cans

GOSSETT technicians were among the very first to come up with a practical, sure way to greatly increase the amount of sliver per can . . . and do it at a moderate cost.



This coiler was converted from a 12" x 36" size up to a 15" x 42" size, increasing the amount of sliver in can by 120% to 125%.

HERE'S HOW

We'll convert your 10" and 12" comber and card coilers to 14" or 15" and drawing frame coilers to 14" in diameter and to 36" or 42" in height. Just imagine what this will do to increase the amount of sliver per can! What's more, and as the photograph shows, you'll get a perfect lay of sliver in the can.

The GOSSETT MACHINE WORKS has already converted the coilers in a number of leading Southern textile mills. Records show a very substantial increase in the amount of sliver per can. It will pay YOU to look into this amazing innovation.

This shows the perfect lay of the sliver in can after coiler conversion from a 12" x 36" size to a 15" x 42" size.

Note this: ***We show here the percentage increase of sliver when a conversion is made. Take, for example, a 12" x 36" coiler. We'll convert it to any one of the following sizes and here is what you'll get:***

Up to This Size	Percentage of Sliver Increase
14" x 36"	60% to 65%
14" x 42"	100% to 105%
15" x 36"	100% to 105%
15" x 42"	120% to 125%

What we do with COILERS

1. We convert 10" and 12" comber and card coilers to 14" and 15" and drawing frame coilers to 14" in diameter and to 36" or 42" in height.
2. We manufacture all sizes of coilers for all makes of combers, cards, and drawing frames.
3. We manufacture parts for all sizes and makes of coilers.

B. W. GOSSETT, President — E. C. MASON, Sales Manager
D. W. SMITH, N. C.-Va. Representative

GOSSETT MACHINE WORKS, INC.
GASTONIA, NORTH CAROLINA

NAL

Lestershire Bobbins by NATIONAL

TWO TIME-HONORED NAMES SET THE PACE IN BOBBIN DESIGN

Newly discovered synthetic yarns, larger "packages," higher rotating speeds—all demand constant improvement in bobbin design. Lestershire Division of National makes this a *fulltime* job. This means you have a source of supply for engineered bobbins to suit almost *any* spindle, speed, or yarn in use today. But this is only one feature of the company's new bobbin service. . .

You get four other essentials when you deal with National. Precision manufacturing methods and rigid quality control assure the dependability of Lestershire bobbins by National. Realistic prices and excellent service from *nearby supply houses* give you real economies. Complete technical help is yours for the asking—from our staff of designers and engineers. And it's all backed by a half-century of experience with the problems and needs of the textile industry.

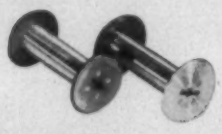
If prompt, skilled attention to your bobbin requirements appeals to you, get in touch with your nearest National Office or representative . . . or write us at Wilmington, Delaware. Local Bobbin Representatives: Odell Mill Supply Co., Greensboro, N. C.; Greenville Textile Supply Co., Greenville, S. C.

Ring Twister Bobbins

Aluminum Take-up Bobbins

Wood and Fibre Twister Bobbins

Rayon Twister Bobbins



Nylon Twister Bobbins

King Spool—Uptwister Bobbins

In Canada:
National Fibre Company of Canada, Ltd.
Toronto 3, Ontario

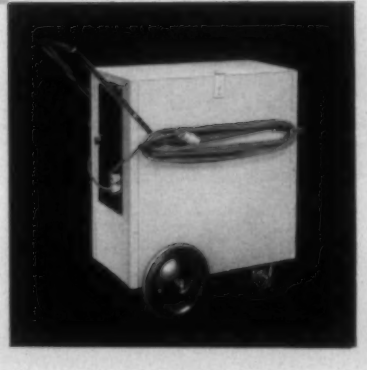
NEW DIMENSIONS IN DESIGN AND SERVICE TO THE TEXTILE INDUSTRY

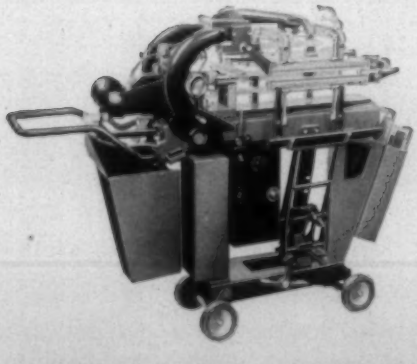
BARBER-COLMAN

SERIES "M" MODELS NOW MADE IN **10** SIZES
FROM 36" TO 126" BY 10" VARIATIONS

PORTABLE *Warp-Tying Machines* FOR ALL PURPOSES

The BARBER-COLMAN line of warp-tying machines has now been extended to cover practically every conceivable application. As noted above, the Type "M" machines are now available in *ten* sizes. These machines tie the *full width* of the warp in one operation, work directly in back of the loom, and are made in several types to tie-in cotton, spun yarns, filaments, wool, worsteds, or synthetic yarns from a flat sheet or from an end-and-end lease. When using a Type "M" Warp-Tying Machine, none of the weaving elements need be removed nor any of the loom settings disturbed. The picture at the right shows the special cart used for protecting the Knotter Unit when not in use and for carrying it from one frame to another when two or more are employed. This carrier also contains the variable speed-controller for the Knotter Unit. These machines are probably the most versatile available for most mill conditions.





IMPROVED SERIES "L" MODELS IDEAL FOR CERTAIN CONDITIONS

BARBER-COLMAN Model "L" machines are familiar to two generations or more of mill people, because they have been on the scene in one form or another for 45 years. The latest designs, one of which is shown here, have many up-to-date improvements which distinguish not only their appearance but also their operation and efficiency. These compact, versatile, and easily-moved machines have many important applications in both large and small mills. Barber-Colman representatives are thoroughly versed in the usefulness and applicability of both Model "L" and Model "M" machines, and can be consulted with confidence as to which might suit a given situation best. Also, it is important to know that all users of Barber-Colman machines are served promptly and skilfully by an alert service group of wide experience.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

BARBER-COLMAN COMPANY

ROCKFORD • ILLINOIS • U. S. A.

FRAMINGHAM, MASS., U. S. A. — GREENVILLE, S. C., U.S.A. — MANCHESTER, ENGLAND — MUNICH, GERMANY

INDIA
Batliboi & Company
Forbes Street, Fort
Bombay, India

MEXICO
J. Rabasa
Isabel la Catolica 45-913
Apartado 7348
Mexico D.F., Mexico

BRAZIL
Quimanil S.A. Anilinas
e Representacoes
Rua Glicerio 537/547
Caixa 5658 e 3431
Sao Paulo, Brazil

JAPAN
Nippu Trading Co., Ltd.
Toa Koshin Bldg.
3-Chome Kitahama Higashiku
Osaka, Japan

NEW
TERMACO CONVEYOR SYSTEM
CUSTOM BUILT
from
ECONOMICAL STANDARD PARTS

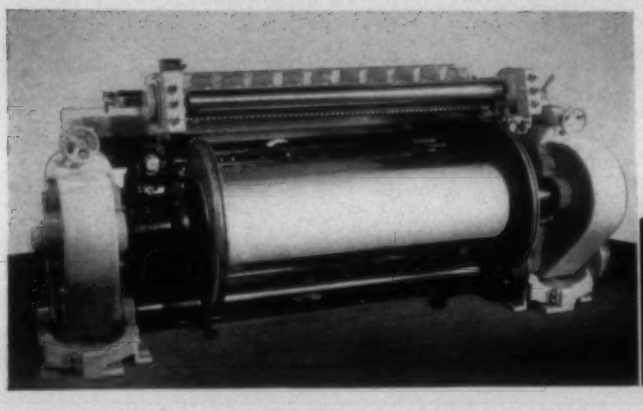
Conveys Bobbins
WHERE **you want them**
WHEN **you want them**

Eliminates costly manual handling, congestion and delays

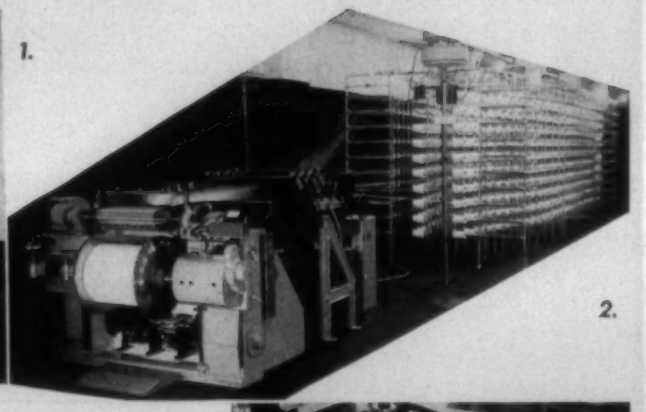
Terrell engineers have recently developed conveyors of a new design which can be economically adapted to individual bobbin handling requirements. Conveyors can be furnished in any lengths, to deliver bobbins to any desired locations, winder hoppers, storage bins, and from floor to floor.

Let a Terrell engineer explain the advantages and economy of a TERMACO conveyor system.

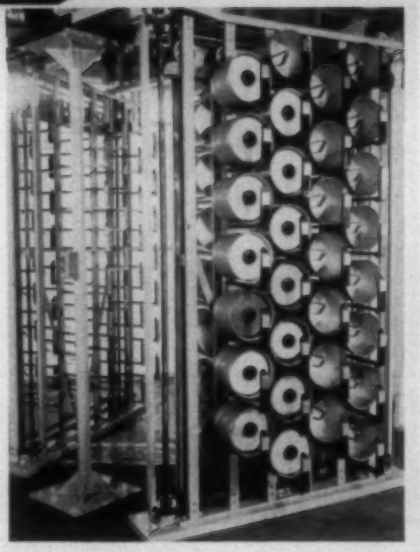
THE Terrell MACHINE COMPANY, INC.
CHARLOTTE, N. C.



1.



2.



3.

Why More Mills are Turning to Cocker Every Month

The Cocker exhibit at Atlantic City gives a partial answer. It included FIVE new warp preparation machines, each one far in advance of anything else ever offered to textile mills.

1. *New 32" Rayon Warper*
2. *New 21" Tricot Warper*
3. *New Cheese Creel*
4. *New 40" Cotton Warper*
5. *All-New Combination Cocker All-Purpose Slasher*

Cocker Has Pioneered

Almost without exception, every valuable new feature on warp preparation equipment has appeared *first* on Cocker machines and has been incorporated in competitive equipment only after a lapse of several years. Even more important, no new feature introduced by Cocker has ever been discontinued because it failed to perform satisfactorily. Research by Cocker's engineering staff has often worked out new problems before the trade was fully aware of them.

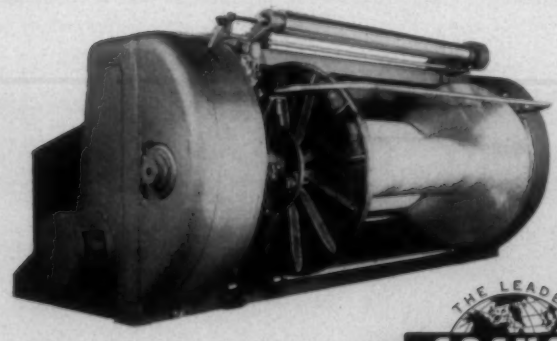
Cocker Has Complete Manufacturing Facilities

Cocker maintains its own foundry, metal shop, and machine shop . . . and Cocker's own superintendents and shop foremen provide close supervision on every step in the production line.

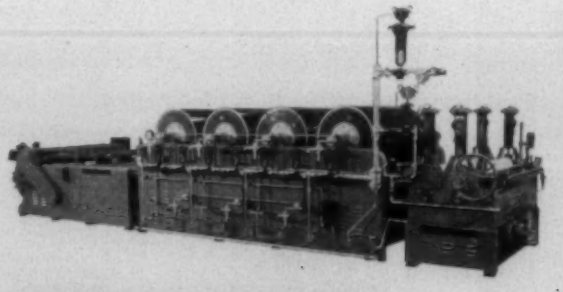
Cocker Specializes in Warp Preparatory Equipment

Cocker produces every piece of equipment you need for superior warp preparation . . . for every type of yarn. For a single machine, or for a complete warp preparation room installation you can call on Cocker with confidence.

Write, wire, or telephone for full information.



4.



5.

THE LEADER AROUND THE WORLD

COCKER Machine and Foundry Co., Gastonia, N. C.

WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

...because it Costs Me Less"

This isn't double talk. It's the direct quote of hundreds of shrewd paint buyers who have specified Barreled Sunlight for many, many years. They pay more for Barreled Sunlight because it costs them less.

And here's the lay of their logic!

Barreled Sunlight may cost a few more pennies per gallon . . . but Barreled Sunlight is so loaded with high quality ingredients, it takes up to a gallon of thinner for every five gallons of paint. You buy less *paint* for the job.

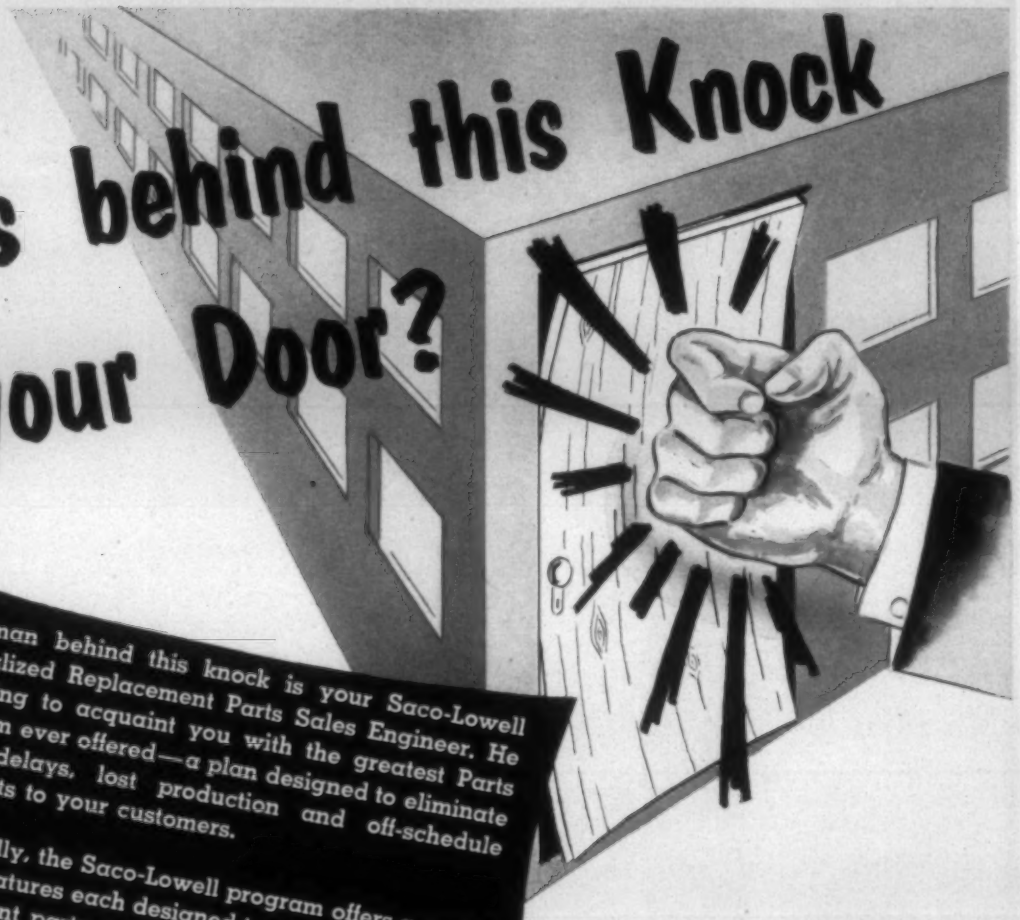
And most important . . . Barreled Sunlight goes on so fast, solidly covers so much more area per brushful, and looks so much better longer, your painting costs go down. That's right, your painting costs . . . *your labor costs* which represents 80% of the total cost go down on both initial and repaint work.

Why not, right now, let our nearest representative prove to you, in your own building . . . on your own walls . . . how you can save money with Barreled Sunlight quality paints? Write and he'll call. Barreled Sunlight Paint Company, 5-B Dudley Street, Providence 1, Rhode Island.

Barreled Sunlight® Paints

In whitest white or clean, clear, wanted colors, there's a Barreled Sunlight Paint for every job

Who's behind this Knock on your Door?



The man behind this knock is your Saco-Lowell Specialized Replacement Parts Sales Engineer. He is calling to acquaint you with the greatest Parts Program ever offered—a plan designed to eliminate costly delays, lost production and off-schedule shipments to your customers.

Specifically, the Saco-Lowell program offers a multitude of features each designed to give better—faster replacement parts service and save you money.

Features OF THIS PROGRAM INCLUDE:

- Specialized sales engineers covering replacement parts exclusively assure personalized, efficient service.
- Separate office staff to expedite and speed orders.
- Special engineering staff to answer technical problems immediately.
- Two centralized parts depots.
- In stock policy on thousands of original replacement parts permit immediate deliveries.
- Illustrated custom catalogs for easy ordering.
- Replacement parts made to original machinery specifications.

Yes!

IT *PAYS* TO USE GENUINE **SACO-LOWELL** REPLACEMENT PARTS - *THEY'RE GUARANTEED*

SACO-LOWELL

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD *and* SACO, MAINE; *and* SANFORD, N. C.

SALES OFFICES: CHARLOTTE • GREENSBORO • GREENVILLE • ATLANTA

FOR TOP QUALITY SHUTTLES...

Look for these Trade Marks

TEMPERED

QUALITY Stehedco CONTROL

STEHIDE

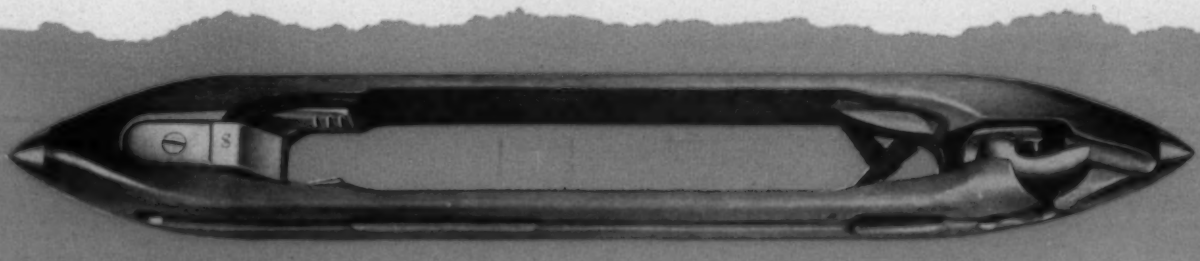
ANOTHER SOUTHERN EXCLUSIVE... *QUALITY CONTROL*

A few years ago the Southern Shuttles Division started a system of Statistical Quality Control. A new approach to an old problem, it is based on the premise that no two items can ever be exactly alike. This system sets up allowable tolerances. Quality is controlled through all the manufacturing processes rather than by inspection alone of the finished product.

Setting up this system for all incoming materials and manufacturing operations required establishing exacting specifications, permissible tolerances, retraining of inspectors and considerable statistical analysis.

After years of intensive work, this system is now functioning smoothly, and with pride and confidence Southern now identifies its products with the Quality Control symbol along with its well known Tempered and Stehide trade-marks. One more feature pioneered by Southern to give you greater value and dependability in shuttle performance.

SOUTHERN . . . The Largest Single-Unit Shuttle Plant in The World



SOUTHERN SHUTTLES

A DIVISION OF **STEEL HEDDLE MFG. CO.**

PARIS, GREENVILLE, S. C.

It's Southern for Service and Delivery

Tempered Dogwood Shuttles • Duraweld Picker Sticks • Supreme Reeds

Hard Chrome Electro Plating • Castings • Stampings

1-R-2

PIGMENT PARTICLES WON'T AGGLOMERATE WHEN TAMOL GETS INTO THE ACT

Without adequate dispersion, particles of pigment stick together and form a heterogeneous mass which invites trouble.

Each pigment particle is coated with a trace of TAMOL dispersant, thereby maintaining a creamy, homogeneous mix.

Here are two Rohm & Haas dispersants which suggest wide application and new benefits in the processing of pigments:

TAMOL N is an efficient, economical dispersant for pigment and dyes. Its action upon solids occurs *without* depression of surface or interfacial tension. As a result, there is no frothing or foaming during milling or mixing operations.

TAMOL N is a particularly fine dispersant for carbon black. It is a highly efficient dispersant in print pastes, giving improved printing properties. TAMOL N is available in water solution, designated TAMOL L.

TAMOL 731-25% is a colorless liquid dispersant which is electrolyte-free. It has excellent dispersing activity on a wide range of solids. It will effectively disperse hydrophobic solids like carbon black, and also many of the more hydrophilic inorganic pigments. It is also available in 100% active dry form as TAMOL 731.

TAMOL N and TAMOL 731-25% are both available in commercial quantities.

For complete technical information, write to your nearest Rohm & Haas office.

CHEMICALS FOR INDUSTRY

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

TAMOL is a trade-mark Reg. U. S. Pat. Off. and in principal foreign countries.

For the Textile Industry's Use

– NEW MACHINERY, EQUIPMENT AND SUPPLIES –

Masonry Nail Driver

The Safe-T-Matic nail driver for driving masonry nails into concrete, cinder blocks, concrete blocks and light and medium gauge metals quickly and safely has been developed by the Safety Nail Driver Corp. The new tool features a built-in permanent magnet which holds the nail in the correct position, and a sliding safety shield, which reportedly cuts working time 80% and eliminates the danger of flying nails. Nails driven with the Safe-T-Matic driver have strong holding power and do not require use of star drills, plugs and screws. The new tool takes masonry nails of ½" to 1⅛". It can be used for fastening clamps to cement or cinder block walls or cables, conduits, tubing, brackets, fixtures, bracing, cornices, gutters, leaders, etc. It can be purchased wherever fastening devices are sold.

(Request Item No. B-1)

Adjustable Containers

Adjusta-Pak method of packing (Signode Steel Strapping Co.)

Signode Steel Strapping Co. has developed an Adjusta-Pak method of packing which utilizes 8 modular units of slotted and scored fibreboard sheets, which, when assembled act as an outer pack to smaller packages. Four sections comprise the bottom, 4 more comprise the top. All sections are identical and interchangeable. They telescope allowing the sections to conform to the inner containers. To make an Adjusta-Pak container, flat sheets are bent at scoring mark and stapled or taped into a corner piece. Four corner pieces are formed into an open container and the packages deposited inside. Four additional corners are formed and placed on top, telescoping over the bottom sections—adjusting to the pack. The entire unit is unitized with 3 or more bands of tensional steel strapping. Signode reports that the container will withstand usual hazards of interstate and export shipments. This method of packing permits adjusting the container sections to mixed orders of odd size packages, the company points out. Use of inner packing materials is reduced to the minimum, as is the cubic volume of a shipment. Signode stock sections contain shipments ranging in size from 18" x 18" x 7" up to 38" x 28" x 24". Other sizes may be designed to fit specific requirements. A descriptive 4-page folder is available upon request.

(Request Item No. B-2)

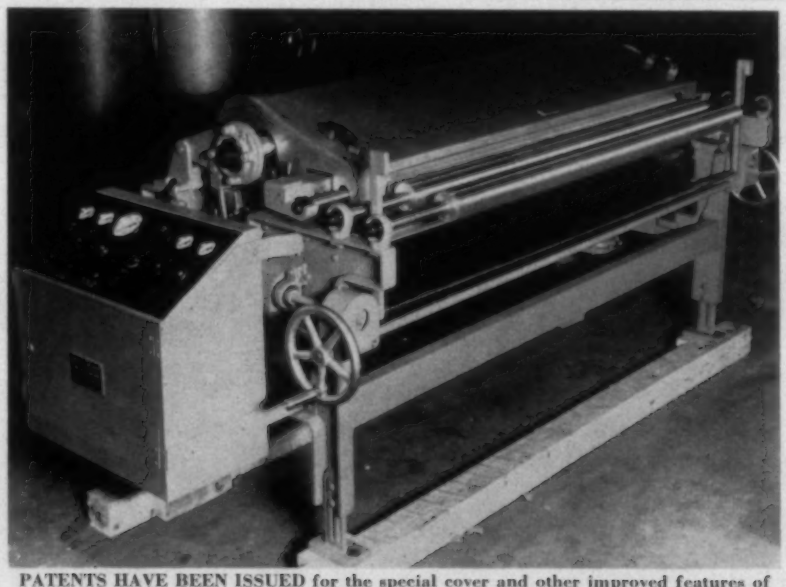
Epoxy Resin Emulsion

Chemical Products Corp. has developed a new resin emulsion called Epoxy resin water emulsion. It is said to be compatible with, may be blended with or may be compounded with almost all resin emulsions or plasticizers to meet the most rigorous requirements. When blended with amine, aldehyde, amid and phenolic resins, it reportedly produces thermo-setting compositions which are hard, tough, flexible and water and solvent resistant. The milk-white resin emulsion containing 40% epoxy solids, the melting point of which is 67 to 70° C., approximately pH 6.9, is stable and compatible in acid, alkali and salt mediums. The dried film is colorless, odorless, clear, firm, flexible, lustrous, non-tacky and water-resistant.

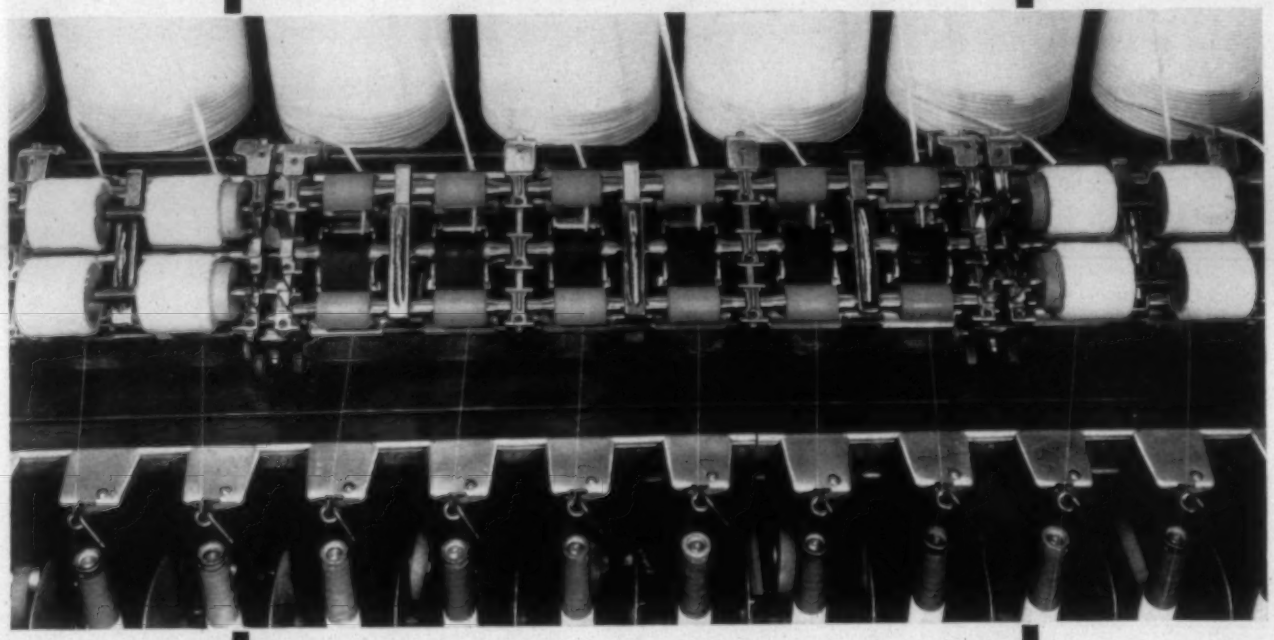
(Request Item No. B-3)

Corrosion-Resistant Finishes

Dennis Chemical Co. has introduced a new series of Denflex plastisol metal coatings and Perma-Skin Epoxy coatings. The primer, Denflex No. 2386, may be applied by brushing, dipping, roller coating or spraying. After an air dry of 15 to 20 minutes on most surfaces, the specially formu-



PATENTS HAVE BEEN ISSUED for the special cover and other improved features of the Griffin size applicator, according to officials of Ira L. Griffin & Sons. Some years ago, Griffin determined that speeds and drying efficiency of dryers was extremely retarded and varied to a great extent. Experiments indicated that this inefficiency and variation was caused by uneven application of size in old conventional size boxes. The squeeze rolls of these boxes were made of cast iron and cushioned with wrapped woolen blankets. This type of cushion was changeable and tended to harden from starch absorbed. Wear caused holes and rough surface areas. Griffin's development made use of the pneumatically-loaded, smooth rubber cushioned roll which aided in correcting these flaws and brought about uniform application of size to every yard of yarn, and every thread in the sheet. The sensitive instrument panel of the Griffin size applicator reportedly enables complete control of application of size to such close adjustment that there is less than one-half of one per cent variation between several machines in operation simultaneously. Height of the applicator is varied by adjustable legs. The size pan, insulated with spun glass and enclosed with stainless steel sheet, has a capacity of 20 gallons. Application with the rubber-covered roll is said to be far more economical than with the woolen slasher cloth. Reduced volume of the size band cuts drainage loss by more than half, the company reports. The drying and speed of the slasher are substantially increased through uniform application of size.



1,500,000 SPINDLES EQUIPPED WITH

Roberts Company is the only manufacturer making all of the components of a complete drafting system changeover including No-Oil Cap Bars and Saddles. Roberts Company is the only changeover manufacturer that CAN and DOES stand in back of its complete drafting system package which includes No-Oil Cap Bars and Saddles.

ROBERTS HIGH-DRAFT CHANGE-OVERS

ROBERTS COMPANY
Sanford, North Carolina, U. S. A.

lated plastisol finish may be applied and baked, it is said. A spray or dip application can be used to produce a soft, resilient, decorative coating or a hard, tough finish of substantial thickness. Gloss and color can be supplied as desired. Outstanding properties are said to be resistance to weathering, abrasion and corrosion, and for electrical insulation.

The development of Perma-Skin Epoxy coatings is based on the use of catalysts to provide, in an air-dry system, properties previously obtainable only with high-temperature baking. This is said to permit coating of items too large or otherwise impractical to bake. The coatings, also recommended for protection of floors against heavy traffic and corrosive spillage, are said to have excellent adhesion, abrasion resistance, toughness, flexibility, acid and alkali resistance, and solvent resistance. (Request Item No. B-4)

Liquid Level Control Valve

A new float-type valve for controlling levels of liquids has been added to the line of industrial control devices manufactured by Fulton Sylphon Division of Robertshaw-Fulton Controls Co. The valve can be used to maintain the level in open storage tanks, process tanks, spray ponds, cooling tower basins and similar liquid reservoirs. The direct-acting control, called the No. 1620 series float valve, is constructed mainly of bronze and steel. Floats of other metals for special applications are also available, the company reports. Designed to require a minimum of maintenance, the control can be ordered in 11 different valve sizes, from ¼" to 4". Larger sizes are supplied with a semi-balanced, double-seated valve. This valve, it was stated, is preferred for many uses, particularly for slurries or liquids containing suspended solids.

(Request Item No. B-5)

Polyester Film Tapes

Two new pressure-sensitive film tapes have been announced by Minnesota Mining and Mfg. Co. The tapes—Scotch brand polyester film tapes Nos. 850 and 852—have similar physical characteristics and metallic (silver) appearances. Each has a polyester film backing that is described as being superior to most existing plastics in heat and chemical resistance. Their polished-silver appearance, 3M explained, is achieved by vapor-depositing between the tapes' adhesive and backing. The tapes differ only in that the No. 852 tape is printable and is supplied with a special polyethylene-coated paper liner. Both tapes reportedly possess excellent resistance to acids, alkalies, ketones, hydro-carbons, esters and other common solvents, as well as excellent resistance to all sorts of weather conditions. Other properties include 25 lbs. tensile strength per inch of tape width, 100% elongation, and 40 ozs. of adhesion per inch of width. In addition, the tapes are said to retain their flexibility at very low temperatures, and have high dimensional stability despite heat and humidity changes. Their polyester film backing is said to be 2 to 8 times stronger than other plastic films. Neither tape will crack, chip or peel. The tapes are available in ¼" to 23" widths on 72-yd. rolls. Wider widths and longer roll sizes can be obtained on special order, 3M reports. Sample ¾" by 3-yd. rolls are available on request. (Request Item No. B-6)

Oil, Moisture Separator

Model No. 65 C oil, moisture separator with clear, heavy-duty cylinder (Beach Precision Parts Co.)

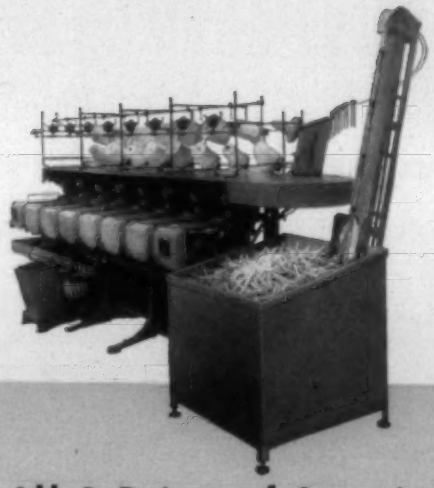
A clear plastic cylinder has been added to the line of compressed air Sta-Dri oil and moisture separators manufactured by Beach Precision Parts Co. The new clear-view unit, Model No. 65 C, is 2½" in dia. by 12" long. The plastic cylinder walls are of ¼" thickness and tested to withstand pressures in excess of 600 lbs. Model 65 C is designed for use on compressed air lines up to 250-lb. pressure. Approximate cleaning capacity of the 2 silk-encased filters in each Sta-Dri separator is a million cu. ft. The purpose of the transparent cylinder is to show when the filter elements should be replaced or when the moisture should be drained from the bottom of the separator.

The new cylinder unit is recommended by the manufacturer for use where the greatest possible degree of air cleanliness and dryness is essential to top production and avoidance of spoilage. The unit has drop-forged ends and ¼" intake and outlet connections. Gauge and regulator equipment and panel mountings are optional. Other models in the Beach Sta-Dri line include compressed air cleaning capacities of approximately 500,000 to 4,000,000 cu. ft.

(Request Item No. B-7)

Paste Soap Dispenser

Gus J. Schaffner Co. has developed a new paste soap dispenser called the Little Doc Disolvit dispenser for water or waterless hand cleaner. Made of 18-ga. steel, the dis-



FOSTER-MUSCHAMP

Automatic Filling Winder

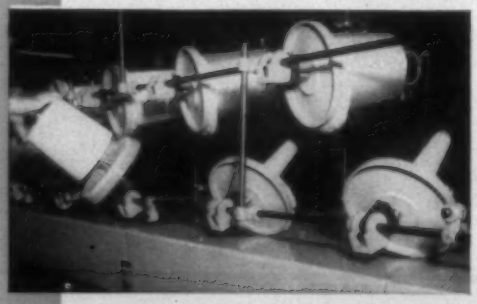
(MADE IN WESTFIELD, MASS., U.S.A.)

All 8 Points of Superiority You Want

- **SUPERIOR WINDING.** Produces practically perfect bobbins because of close delivery thread guide, shock-proof start, simple and effective layer locking device and feelerless guide.
- **SIMPLICITY OF DESIGN.** Spindle box has only 2 sets of gears. Traverse cam, outside of spindle box, requires no lubrication. Spindles independently controlled, so different size yarns can be run on each spindle and so other spindles will continue to produce if one is stopped.
- **LOW MAINTENANCE.** Spindles are not geared, have no clutch, run in ball bearings and are driven in groups of 8 by motor with overload capacity. Low cam speed (in spite of 15,000 r.p.m. spindle speed) promotes long life.
- **LOWEST OPERATING COST.** As low as ¼c per lb. of yarn quilled, when magazine creel carries 4 lb. cones and machine is equipped with central bobbin-hopper and automatic pin-boarding, or filling box stacker.
- **LOW INVESTMENT.** About $100.00 per loom serviced, when machine is equipped for fully automatic operation.
- **FLEXIBILITY.** Different counts or colors can be run on same machine at same time. Will wind all counts and types of yarn.
- **FULLY AUTOMATIC OPERATION.** When machine is equipped with all automatic attachments, only duties of operator are to creel in supply and pick up broken ends.
- **EXPERIENCED AND RELIABLE MANUFACTURER.** The Model 66 is made entirely by us in Westfield, Mass. We are proud of our 64 years of experience in designing and building winders and our reputation for reliability and integrity.

FOSTER-MUSCHAMP MODEL 66 BOBBINS

EMPTY BOBBIN READY TO MOVE INTO WINDING POSITION AND FEELERLESS BUILD



MAGAZINE CREEL

Buy FOSTER MUSCHAMP Automatic Filling Winders and get ALL of the 8 points of superiority you want.

FOSTER MACHINE COMPANY

A Winder for Every Textile Purpose

WESTFIELD, MASSACHUSETTS, U.S.A.

SOUTHERN OFFICE, JOHNSTON BLDG., CHARLOTTE, N. C.

FOR THE TEXTILE INDUSTRY'S USE—

penser is 6¾" deep, 11½" high, 9½" wide and weighs 4½ lbs. A push of the dispenser handle delivers enough heavy-duty paste-type hand cleaner for 1 washing, either with or without water. Throw-away cartridges containing 300 washings and weighing 7½ lbs. can be used in the dispenser. Cartridges can be changed in less than 60 seconds, Schaffner reports. By delivering no more soap than is needed for a single washing, the dispenser effects considerable savings, it is said. (Request Item No. B-8)

Low-Profile Fork Truck

A new low-profile rider-type fork truck for highway truck loading or other low headroom operations has been announced by the Automatic Transportation Co. Highly maneuverable, the electric-powered truck is said to feature improved driver safety and a low center of gravity resulting in better load control and greater stability. Seat of the truck is only 32" above the ground. The operator's head is less than 68" above the ground, height of the fork masts, so he does not have to duck when entering a truck or passing under a low clearance obstacle. The 68" mast is low enough to clear the header bar of a semi-trailer unit, Automatic points out, and the low profile was achieved without sacrificing maneuverability. The new truck can make a right-angle turn in 114" with a 48" pallet load. Single lift is 53", telescopic lift 102". Masts can be tilted back 10° and 3° forward. The unit is available in capacities ranging from 1,000 to 4,000 lbs. monolift or duolift.

(Request Item No. B-9)

Electric Stand-Up Truck

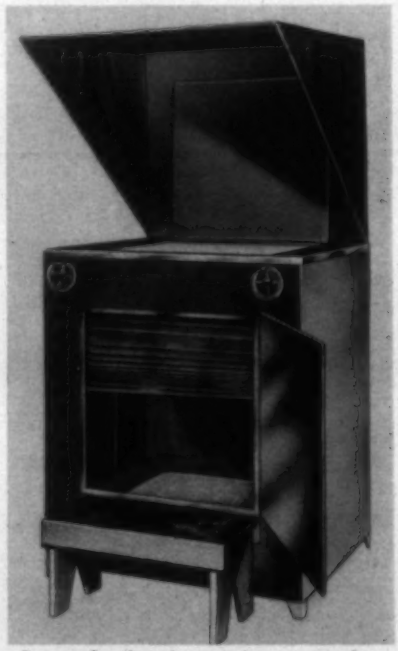
A new electric stand-up hydraulic lift truck designed especially for operator efficiency and safety has been announced by The Yale & Towne Mfg. Co. Designed originally for companies which prefer a stand-up truck to avoid frequent mounting and dismounting, the Yale stand-up electric truck is said to be capable of handling any job that can be performed by any other truck of its rated capacity. Called the K-46 model, it is available in 2,000, 3,000 and 4,000-lb. capacities. It has a top speed with a full load of 4½ to 5 m.p.h., will carry the load up to a 10% grade and has a lifting speed with the full load of from 37 to 40 ft. per min. Slightly under 28" in width, standard models are available in 68", 83" and 90" mast heights. The truck will right angle turn in a 58" aisle and features 5° forward and 10° backward tilt.

The operator stands in the center of the truck and can mount or dismount from either side. This is said to afford the greatest safety and best visibility advantage. Hoist, directional and speed controls are located near the steering wheel. Power is cut off and brakes are applied automatically when the operator leaves the truck. The truck is equipped with 2 trailing steering wheels which turn at an angle to provide maximum maneuverability. Steering wheels are individually caster mounted on heavy duty annular ball thrust bearings. It is also equipped with the Yale magnetic Cam-O-Tactor controller which is designed to insure smooth acceleration and time delay action between each of the 4 forward and 4 reverse speeds. Other features include a drive unit that has double reduction spiral bevel and hypoid gears mounted on tapered roller bearings in an oil-tight housing and brakes that are of the heavy-duty hydraulic type mounted on banjo housing completely inside the wheel. (Request Item No. B-10)

Emulsifiable Polyethylene

Allied Chemical & Dye Corp. reports that emulsifiable Type A-C polyethylene is now available in limited quantities for evaluation on plant run scale. It is said that small particle size, stable, clear, high-solids-content emulsions are readily obtained with this easily emulsified material. Its color and the competitive advantages of its stable price are said to give it a considerable edge over higher cost vegetable waxes. In addition, this material is controlled by narrow specifications. (Request Item No. B-11)

Camera-Projector

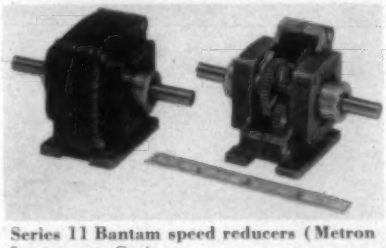


Camera Lucikon for creating or reproducing patterns and designs (M. P. Goodkin Co.)

The M. P. Goodkin Co. announces the availability of the Camera Lucikon which may be used in the textile industry in the original creation of design work or to blow-up patterns and designs for reproduction. According to the manufacturer, Camera Lucikon will take anything opaque, transparent or 3 dimensional which can be placed on the copyboard and enlarge or reduce it 400% in true color. The image is projected through and upon a working surface to the desired size, eliminating hand shadow. The operator can either view the projection for comparison purposes, trace the projected

image for design purposes, or make a photographic negative for reproduction purposes. It has a working area or focal plate 24" x 24", which is said to be the largest of any known competitive unit. The copyboard measures 29" x 29" and floor space required is 29" x 34". It is equipped with a black hood that eliminates the necessity for using it in a dark room, except for photographic functions. For all other functions any normally lit office or plant area is satisfactory. Being a self-contained unit, the glare from the lighting system does not shine across the room into other workers' eyes, it is said. (Request Item No. B-12)

Bantam Speed Reducer



Series 11 Bantam speed reducers (Metron Instrument Co.)

Metron Instrument Co. announces that Series 11 Bantam speed reducers are now obtainable in Metron's Bantam speed reducer line. Described as about the same size and weight as the standard Bantam units, Series 11 reducers, for most purposes, have no backlash, it is said. The anti-backlash results from 2 parallel gear trains that are spring-loaded against each other, Metron reports, thus backlash is continuously taken up whether running or not. The torsion spring is wound to give an anti-backlash torque of 2 lb./in. either direction. Where maximum output torque isn't needed, spring torsion may be reduced to permit lower input torques, it is said. They may be obtained in any of 600 standard ratios. Gears are hobbed, 48 pitch and hardened to provide smooth operation and long life. Antifriction bearings are used throughout.

(Request Item No. B-13)

Finishing Resin For Nylon

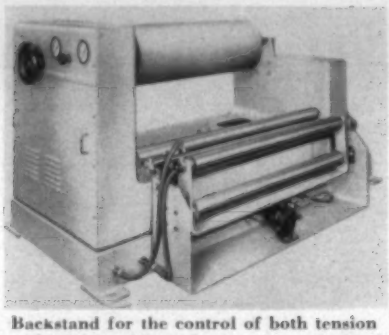
Crown Chemical Corp. has announced the development and release of a new resin named Syncap On, specifically designed for application on nylon for the production of durable stiff finishes. The resin is being used for producing taffetized or parchmentized effects and it is said to impart unusual characteristics to marquisettes and sheers. Crown emphasizes that nylon fabrics processed with Syncap On insure maximum flame resistance. (Request Item No. B-14)

Azomatic Solutions

The invention of concentrated base formulations that help eliminate some prevalent problems encountered by yarn and fabric dyers and by textile printers has been announced by the Augusta Chemical Co., which supplies the new series of products now available under the trade-mark of Azomatic Solutions. Patent has been filed by Augusta on its new products used in the necessary and important step known as diazotization in the preparation of fast, vivid colors for dyeing yarns and fabrics or for printing textiles. The company reports that the new products simplify the process of diazotization to a great degree since dyers and printers now need merely stir the required quantity of Azomatic Solution into acidified cold water and, in a matter of seconds, they have a concentrated, tar-free diazo. No nitrite, no stazilizers or materials other than the acid are necessary, it is said. The nitrite required for complete diazotization is part of the solution in which there is an exact balance of base and nitrite. The formulations were developed, the company reports, in view of the fact that the diazotization of bases has long been a frequent source of trouble to fabric dyers and printers, especially in the matter of obtaining a complete diazotization and a clear, concentrated solution ready for use. The new series of products is said to provide ready-for-use solutions which instantly produce diazos free of tar and other insoluble materials; give better penetration and greatly improved fastness to crocking, thereby helping to avoid seconds and rejects. Also, because the new series assures uniform diazos, shades are reportedly brighter, cleaner, deeper and can always be duplicated. Much time is saved with the new formulations since they require no straining. Because there are no decomposition products or undiazotized base left with the use of solu-

tions, there is also a great saving in clean-up time. Plant equipment is easily cleaned after a run because no tarry decomposition products have been deposited on equipment during the dyeing or printing and a simple hosing or rinsing with plain water is all that is necessary to prepare the equipment immediately for the next run, Augusta reports. (Request Item No. B-15)

Askania Backstand



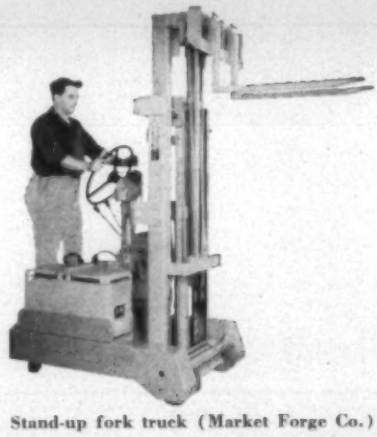
Backstand for the control of both tension and edge position of a moving web (Askania Regulator Co.)

Askania Regulator Co. has announced a new backstand that is said to control both tension and edge position of a moving web as it is fed to a rewinder, slitter, converting machine or other similar device requiring such control. According to the company, tension may be maintained at any selected value up to 4 lb./in. within 5% of any steady web speed. Edge position is maintained within .015" with a runout of ± 3" from center position. The backstand operates at speeds up to 1,200 f.p.m., and the larger model will accommodate a 2,000-lb. roll measuring 54" in width and 48" in dia. Accurate control can be maintained down to a 3" core, it is said. The tension control system is fully hydraulic, and Askania reports that the use of incompressible fluid to transmit signal cuts response time to ¼ that of an otherwise comparable pneumatic/hydraulic control system. The unwind stand and the control systems are combined in an integral package requiring only electrical and air connections for operation. The larger units may require water to cool the brake. According to Askania, the control panel may be installed remotely for the operator's convenience, and the tension gauge may be calibrated to read in pounds per inch if only one web width is to be handled or in total pounds of tension force. (Request Item No. B-16)

Small Variable Speed Drive

T. B. Wood's Sons Co. has added a new smaller variable speed drive to its line of standard variable speed drives. Made with the same construction as the larger h.p. drives, it is designed to give infinitely variable speed within a 2-to-1 speed range ratio for 1 to 5 h.p. drives. Some of the features pointed out by the company are: both flanges move simultaneously by a single adjusting screw to change the pitch dia.; positive clamping of the 2 adjustable flanges, eliminating fretting corrosion; flanges are quickly and easily released for making speed changes; single wide-range belt gives maximum h.p. efficiency, eliminating problem of maintaining matched belts and matched grooves for equal power distribution; single belt design reduces weight and space required; and no grease fittings or oil cups, therefore, no preventive maintenance needed. Bulletin No. 47, giving detailed information, is available free upon request. (Request Item No. B-17)

Stand-Up Fork Truck



Stand-up fork truck (Market Forge Co.)

A new stand-up fork truck is being manufactured by Market Forge Co. The new truck allows the use of 2 batteries, placed on either side of the operator, without sacrificing mobility and with an increase in performance, the company reports. A foot switch with 2 speeds forward and 2 speeds reverse and equipped with a dead-man brake, gives 1-foot control operation and automatic braking when the unit is unattended. Forward and reverse are controlled by a direction switch which is hand-operated and mounted conveniently near the steering wheel. The storage batteries, either 12-volt units connected in parallel for independent or simultaneous use or 6-volt units connected in series, provide up to 800 amp. hrs. capacity. Measuring only 31" or 42" in width and 58¾" in length, not including forks, and with a turning radius of only 52", the truck is an all-purpose tool said to be ideal even for the smallest plants where loads of more than 50 lbs. must be handled. (Request Item No. B-18)

Cotton & Rayon Dyestuffs

General Dyestuff Corp. has developed 4 dyestuffs for cotton and rayon. Fastusol Orange L4GU-CF is described as a yellowish-orange direct dye with very good light fastness in straight dyeings and improved light fastness with good shade uniformity when finished with an anti-crease resin.

Rapidogen Black ITA is a straight dye recommended for printing blacks and grays. It is said to have superior light and wet fastness. In short soaping baths, it is said to stain whites very little.

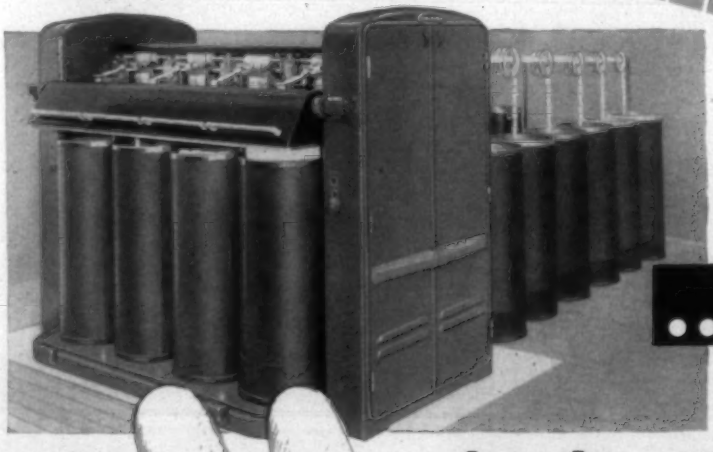
Fastusol Orange L6GU-CF is a yellowish-orange direct dye recommended for fabrics that are to be anti-creased. Dyeings of this orange are improved in light fastness and

Superflex Spinning Frame

Quik-Set Roving Frame

NOT 1

NOT 2



ROTO-DRAFTER

...BUT 3 BRAND NEW MACHINES

for the WHITIN American System

the only completely integrated unit—now available for processing worsted, synthetics and blends

Now for the first time all three machines necessary for the production of worsted, synthetic, or blended yarns on the American System are available from Whitin. The new and remarkably versatile WHITIN ROTO-DRAFTER processes top. The new WHITIN QUIK-SET Roving frame will accommodate worsted sliver weighing up to 120 grains and 100% synthetic sliver weighing up to 100 grains. The new Whitin American SUPERFLEX Spinning frame, like the QUIK-SET Roving frame, has top arm roll suspension and new weighting arrangements. A well matched trio of outstanding textile machines for quality production and profits . . . **the Whitin-American System Way!**

Complete descriptive literature on all of these machines is available.

Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

slightly improved in wash fastness, while the shade becomes only slightly redder upon after-treatment.

Algol Printing Black WW cone paste is a vat dye which is said to afford very good light and wet fastness on cellulosic fabrics. The dye reportedly has fair-to-good fastness to active chlorine solution, excellent fastness to hot pressing and poor fastness to plisse finishing. (Request Item No. B-19)

Dacron Dyeing Carrier

Metro-Atlantic announces a new Dacron dye assistant, Dacro-Dye, a newly developed carrier for the dyeing of Dacron polyester fiber with dispersed type dyestuffs. It is described as a free-flowing self-emulsifying product with especially high shelf-line—highly efficient and extremely economical. Toxic effects with this product are at a minimum, the company reports, and it yields high color values and gives fuller and more even shades. (Request Item No. B-20)

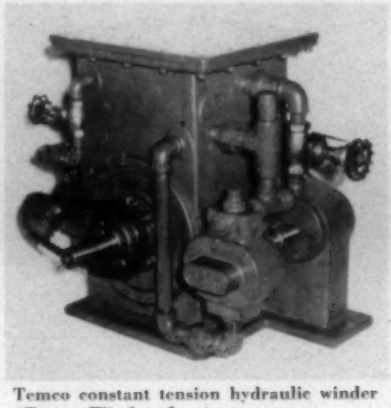
Transition Polyphase Motor

The small integral motor department of General Electric Co. has announced a new transition polyphase motor line in the 1 to 5 h.p. range. To be built in the old frame sizes and dimensions of the N.E.M.A., the motors will incorporate all of the advanced engineering and insulation features of the new Tri-Clad 55 motor, which the company builds according to the new N.E.M.A. dimensions. The motors will be available in most popular ratings at the premium prices already in effect for motors in the old N.E.M.A. frame sizes, the company reports. The premium prices will give the new transition motors the added features of Mylar polyester film insulation, G.E.'s Dri-film silicone water-repellent core, solid cast rotors, advanced design for sonant operation and the modern appearance of the new Tri-Clad 55 motors. (Request Item No. B-21)

Automatic Fiber-Measuring

A new machine developed by Britain's Wood Industries Research Assn. is said to be capable of measuring single fibers up to 30 cms. in length, at a rate of up to 500 an hour. It automatically classifies them into 0.5 cm. groups, and semi-automatically records their length. The machine consists of a lead screw which, driven at a low speed by a small electric motor, serves to give a straight line traverse to the tip of a pair of forceps held in the groove. These grip the leading end of a fiber drawn from the sample under test. The fiber is lightly held at its other end between a pressure plate and a small anvil, and is finally withdrawn when the traverse of the forceps equals the length of the fiber. When this happens, an electrical trip stops the machine and the position of the forceps as indicated on a scale mounted parallel to the screw gives the fiber's exact length. All fibers are measured under controlled tension and the calculations of average length, co-efficient of variation, etc., is a relatively simple matter, it is reported. (Request Item No. B-22)

Automatic Hydraulic Winder



Temco constant tension hydraulic winder (Temco Winders Inc.)

Temco Winders Inc. announces its new Temco constant tension hydraulic winder which, according to the manufacturer, guarantees a smooth, even, constant tension (or tensionless) wind. It is described as a highly versatile, self-contained unit that can wind any thickness, width, weight or type of material at a wide range of linear speeds, tensions and roll build-ups. The winders are said to be easy to install, requiring only alignment and power supply connection. The manufacturer has available a free catalog which gives every pertinent detail of operation. (Request Item No. B-23)

Pad Colors

A new series of pad colors has been announced by Pad Dye Corp. The series makes it possible to pad acetate fabrics in the greige without detergents or penetrating agents, the company reports. Colors are said to completely eliminate shading and tail-off. Of the water-soluble type, the pad colors are designed for use on acetates and nylons in either pad hot water or pad steam systems. They are currently being used in production quantities, according to the manufacturer. Colors are Blue BS and GS; Yellow GS; Orange 3RS; Scarlet BS; Red RS and Rubine BBS. (Request Item No. B-24)

Static Control System

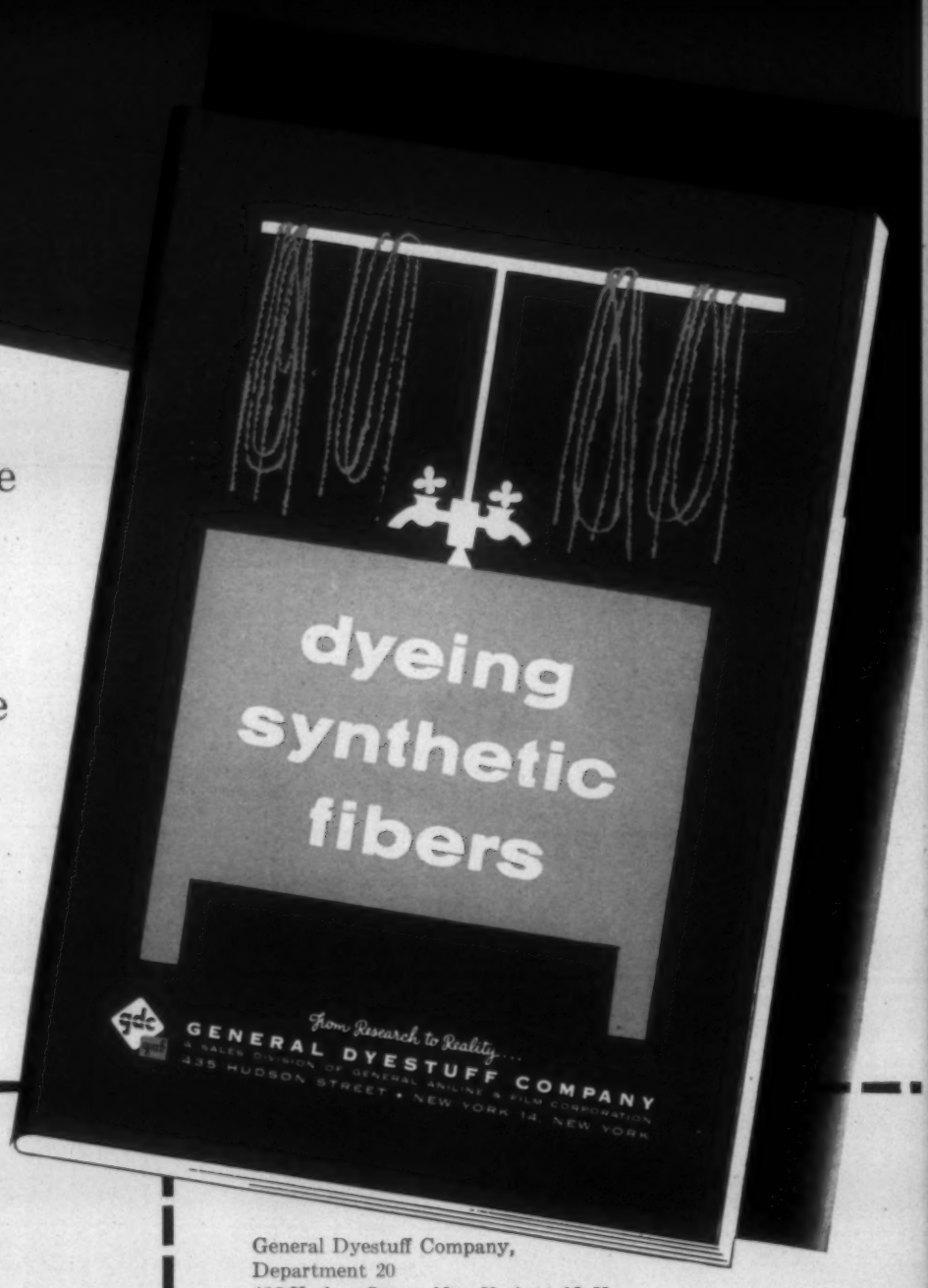
The Hewson Co. Inc. has announced the introduction of a new Model 100 TAKK special static control system. The unit is intended for applications where space limitations prevent the use of the standard TAKK static control equipment. It is also intended for use where static problems are less severe and processing speeds lower than where the standard TAKK high-powered equipment is required, Hewson points out. Said to be ideally suited for application on many types of textile processing machines, the Model 100 has the same "plus" factors of safety to personnel and low maintenance cost as the regular TAKK units. Stainless steel emitters and target rods are used, as well as the new resistance material which was recently introduced in the standard

Announcing the

FOURTH EDITION

of this valuable book—

Your copy is now ready



With special chapters on:

ACETATE	FORTISAN
ACRILAN	NYLON
CELCOS	ORLON
DACRON	SARAN
DYNEL	VICARA

X-51 ACRYLIC FIBER

General Dyestuff Company,
Department 20
435 Hudson Street, New York 14, N. Y.

Kindly send a copy of Brochure GS-66—DYEING SYNTHETIC FIBERS

*Name*_____ *Position*_____

*Company*_____

*Address*_____

*City*_____ *State*_____

Far from static—the field of Synthetic Fibers continues to expand. Old types are steadily improved in both physical and dyeing properties. New types are developed. New blends and constructions are devised. With each change, there are new problems for the dyer and the finisher.

For this reason, we now offer the Fourth Edition of our Brochure GS-66—covering new developments and methods and new ideas on the field not included in the Third Edition. Dyeing methods are briefly outlined, together with indications of the fastness properties to be expected on various fibers. Where a given type is available in several blends, all blends are covered.

The coupon above will bring your copy—without cost.

From Research to Reality...

GENERAL DYESTUFF COMPANY

A SALES DIVISION OF GENERAL ANILINE & FILM CORPORATION

435 HUDSON STREET • NEW YORK 14, NEW YORK

BOSTON • CHARLOTTE • CHATTANOOGA • CHICAGO • LOS ANGELES • NEW YORK • PHILADELPHIA • PORTLAND, ORE. • PROVIDENCE • SAN FRANCISCO

FOR THE TEXTILE INDUSTRY'S USE—

TAKK static control units. Model 100 also uses a new tough elastic material that is highly resistant to both mechanical and electrical shock, and it is able to withstand higher temperatures than the materials used previously. Model 100 static eliminator bars are available in multiples of 4" up to any length required.

(Request Item No. B-25)

Cotton Softener

Dexter Chemical Corp. has announced the development of a new-type cotton softener, Dexene 77. According to the company, the anionic softener produces no yellowing of the treated goods, does not affect light-fastness of dyes, facilitates high-speed sewing and cutting and produces a superior hand than other type softeners used on cotton. (Request Item No. B-26)

Resin Coating

Pennsylvania Salt Mfg. Co. has developed a new resin coating product which it has trademarked Thick-Coat. According to the company, the product provides a durable protective coating for new or corroded metal, concrete and wood equipment and structures or surfaces exposed to fumes, corrosive chemical laden atmospheres or spillage of corrosive chemicals of acid, alkaline or neutral nature. It is said to have excellent flow qualities and is applied like regular maintenance paint by brush, roller or spray as it comes from the can. Pennsalt points out that in a 3-coat system—1 primer and 2 top coats—it will build to a minimum of 6 mils dry film thickness. Containing over 60% solids by weight, it reportedly assures long lasting protection on edges and crevices as well as on plain surfaces. The coating is offered in white, green, slate gray and black. Other colors are available on special order. (Request Item No. B-27)

Recorder Charts

Development of a new type chart paper with special properties which are said to improve the legibility of instrument records has been announced by The Foxboro Co., industrial instrument manufacturer. The new Humitex circular and strip charts are printed under controlled humidity conditions on a white sulphite sheet, meeting rigid standards of uniformity and stability. Special sizing agents have been added to permit sharp, distant recording without "feathering," it is said. Scale markings and time arcs are printed in a neutral gray for vivid contrast with colored recording inks. Circular charts are printed and center-punched in the same operation, holding eccentricity tolerance of less than .002" between hub hole and scale circles. By an exclusive process, the printing plates are produced to tolerances of .00025". The charts are designed for use with new sediment-free Type 1500 general purpose ink and Type 316 stainless steel pens to provide a complete set of precision recording components for the company's line of recording instruments. A sample circular chart will be sent on request. (Request Item No. B-28)

Sequestering Agent

Hart Products Corp. announces the development of a new sequestering agent, Kalex G, designed for heavy metal ions such as ferric iron, nickel, cobalt, copper, zinc, manganese, etc. This sequestrant is said to display the highest sequestering power for heavy metal ions of any chelating agent examined. Kalex G is not recommended for the sequestration of alkaline earth ions. On a solid basis, Kalex G shows the following chelating power (grms. of metal ion sequestered per grm. of Kalex G): nickel—0.44; cobalt—0.62; zinc—0.38; copper—0.52; ferric iron pH=7—0.90; ferric iron pH=9—1.3; and ferric iron pH=11—1.7.

(Request Item No. B-29)

Turbo Stapler Tow Guide

Du Pont has announced the development of a tow guide designed for use with the Turbo stapler manufactured by Turbo Machine Co. The company points out that a tow guide must maintain the tow end in a fixed position as it is pulled from the carton and keep the filaments compact and parallel. The tow from the guide is fed through a tensioning section to the Turbo stapler which reduces it to sliver. The

STA report shows increased use of GAULIN-HOMOGENIZED SIZE

HERE are the typical experiences of 33 North and South Carolina Mills: as told to the STA. Read them and you will have the reasons why you should give a Gaulin Homogenizer a try.

9 in 10 mills say their entire production is now on Gaulin-Homogenized size.

8 in 10 have switched to pearl starch since adding a Gaulin.

7 in 8 claim greater uniformity of added size on homogenized warp.

3 in 4 report a decrease in hard size.

5 in 9 report improved size penetration of their yarn.

1 in 2 say the quality of the warp yarn is greatly improved . . . another 16% claim a little improvement.

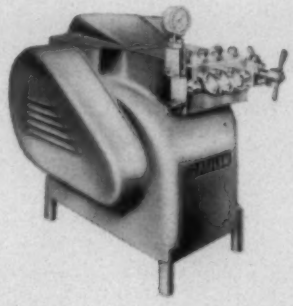
2 in 3 find the viscosity of homogenized size is more uniform than regular size cooked in the conventional manner.

3 in 33 find they can store Gaulin-Homogenized size 8 hours before its usefulness is gone, 8 mills say 16 hours, 14 say 48 hours, 3 say it varies, 5 will not store their size.

All mills say they consider a Gaulin Homogenizer a worthwhile investment.

And how long does it take for a Gaulin to pay for itself? Well, 8 of the 33 mills report 6 months, 8 say 12 months, 13 say 18 months, 2 say 24 months, 2 say 36 months as they are replacing converted starches with homogenized pearl starch. They all say that starch represents the principal savings. Other savings include shorter preparation time, fewer seconds due to hard size, lower steam consumption due to shorter cooking cycles, and ability to store size over the weekend.

Give a Gaulin Homogenizer a test in your mill. We'll be glad to install one for you on a guaranteed-performance basis. Whether you're making cottons, worsteds or synthetics, just drop us a line asking for one of our sales engineers to call.



straight bar guides conventionally used are not always effective in removing folds and twists, it is said, and do not satisfactorily keep the tow in a centered position as it is fed to the Turbo stapler. Guide fingers are required to center the tow ends and they frequently cause folds.

Basically, this new type of tow guide is a device to eliminate folds and twists. Du Pont reports the following benefits have resulted from its use: (1) the number of times a carton is turned because of twists and folds is greatly reduced; and (2) the need for periodically centering the tow in the creel tensioning sections is practically eliminated. The device holds the tow in a fixed position in the guide regardless of its position in the tow carton.

The guide consists of 3 curved bars mounted in definite positions on a holder. The arcs of the 1st and 2nd bars are positioned horizontally while the arc of the 3rd bar is positioned vertically. The guide is mounted so that the 1st bar is as high as practical above the tow case. In use, the tow passes over the outside of the 1st bar and is spread on the arc of the bar. The spreading done at this point provides enough force to remove folds and twists. The 2nd bar is contacted on the underside by the tow and condenses the tow into a wide ribbon. The action of the opposing curvatures of the 2nd and 3rd bar keeps the tow centered in the guide. It is pointed out that, if the tow has a tendency to work to one side of the first bar and stay there, the snub can be reduced slightly by tilting the first bar downward through an arc of 1" until the tow is centered in the unit. The number of bars in the tensioning section must be reduced from what is normallly used with the straight bar guide, it is said, and 3 bars should suffice.

(Request Item No. B-30)

Polyethylene Sealer

Mercury Heat Sealing Equipment Co. announces an improved polyethylene sealer known as Poly-Sealer, Model MPE-12. Said to be foolproof and simple in operation, Model MPE-12 is mounted on a self-contained table complete with foot pedal. It is ready for use by plugging it into any convenient outlet. A heavy-duty thermostat controls temperature which can be easily checked on a dial-type heat indicator. Equipped with a non-sticking device of unique design, Model MPE-12 will seal polyethylene bags as fast as the operator can feed them to the machine, the company reports. The standard model has 12" sealing jaws. It is also available with 16" and 24" jaws. Complete data and descriptive literature can be obtained by using the reader service reply card in this section of the magazine. (Request Item No. B-31)

Bleaching Stabilizer

Pennsylvania Salt Mfg. Co. has announced the development of a new bleaching stabilizer called Sunolox for use by bleacheries in alkaline peroxide solutions for bleaching cellulosic materials. The stabilizer is described as a water soluble, dry inorganic product that demonstrates superior bleaching action, eliminates serious dyeing difficulties and provides substantial savings in time and water required in rinsing. Sunolox is said to be effective in combination bleaching with chlorine and peroxide where ordinary stabilizers cannot be used. It reportedly leaves no insoluble residues on yarns or fabrics. The finished work retains its natural softness and original colors. The stabilizer can be used in package machines, kiers, dye becks, pads, jigs and string dyeing machines as well as in rope and open width continuous bleaching ranges. According to the manufacturer, it is non-corrosive and harmless to the skin and delicate fibers.

(Request Item No. B-32)

For the Mill Bookshelf

Automation Dictionary

Many a businessman stands in awe of the engineering profession's accomplishments in today's atomic age, but is baffled by and a little impatient with the growth of "engineeringese" in everyday language. Words like "sinusoidal," "reproducibility," "feedback," "optimalization" are bandied about these days by engineering-trained executives as though common terms, sometimes leaving the non-technical folk in the dark. One firm, perhaps prompted by its corporate conscience since its own automation engineers have contributed heavily to this polytechnical polyglot, has decided to try and clear up some of the confusion. Surveying the technical terms most broadly used, the industrial division of Minneapolis-Honeywell Regulator Co. has packaged them in a modest booklet complete with clear laymanlike definitions. This little "automation dictionary" covers some 87 words and phrases, all of which had their origin with the engineers but are now creeping into the lexicon of today's modern businessman. An example of the candidness with which these engineers defined their pet terms for the average businessman is found in the definition of "measuring means." By most standard engineering definitions, it takes some 30 words to explain. The booklet disposes of it in 7, explaining it's "whatever is used to measure a condition." Lest their engineering brethren cry "treason," the designers of the simplified booklet point out that it was primarily designed for those whose knowledge of automatic control is largely limited to the setting of the thermostat on the living room wall. (Request Item No. B-33)

Viscosity Conversion Chart

A chart which provides a quick, convenient means of translating any viscosity measurement into 7 other standard units has been released by the Nopco Chemical Co. Methods of measuring viscosity vary from industry to industry and, even in the same field, from one company to another. This novel conversion nomograph has been designed to minimize the problems caused by the lack of standardization by providing a means of rapidly converting from one system to another. The chart is available free of charge. (Request Item No. B-34)

Plastic Pipe and Fittings

How to use and specify rigid plastic pipe and fittings is the subject of a new 12-page catalog of its standard line offered to design, maintenance and application engineers by Alpha Plastics Inc. The catalog is designed to enable engineers to learn the modern uses for plastic pipe to keep their methods in step with product processing and maintenance improvements. It provides useful reference facts on its ½" to 4" line of normal impact (Alpha No. 101) and high impact (Alpha No. 103) unplasticized polyvinyl chloride pipe and fittings, plus properties and characteristics data, together with detailed drawings and specifications of solvent-type fittings plus the new, injection-molded threaded fittings. Featured is a corrosion chart classifying more than 275 corrosives rated according to desirability of use with Alpha No. 101 and Alpha No. 103 piping. Recommended and non-recommended applications are shown, based on company tests, user reports and field experience. Ease of workability, installation of Alpha plastic pipe in piping systems plus per ft. costs in schedules No. 40 and No. 80 pipe and ordering information, is included. The catalog is available to qualified industrial engineers upon letterhead request. (Request Item No. B-35)

Electrical Switches

Micro Switch, a division of Minneapolis-Honeywell Regulator Co., announces the release of 2 new catalogs. Catalog No. 75 is a 12-page booklet covering subminiature snap-action precision switches, auxiliary actuators, subminiature switches, toggle and push button subminiature switch assemblies. It gives complete information on the standard subminiature (single-pole, double-throw) basic switch. Two pages of auxiliary actuators are shown that adapt these switches for actuation by cams and slides and for actuation by a light operating force. Other auxiliary actuators enable 2 switches to be actuated by a common actuator.

Catalog No. 62 covers precision snap-

This new Robbinette* Ring has a finish which is the result of many years of cooperative research between Saco-Lowell technicians and the steel manufacturing industry. Testing and trial run reports show that its all-around performance is far superior to that of any other spinning ring.

This Saco-Lowell Robbinette* Ring is suitable for cotton, wool, paper, glass and all synthetic fibers and blends. Robbinette* Rings break in rapidly and easily — and once in operation, they increase the life of the traveler and decrease the number of ends down per MSH.

Robbinette* Finish is now standard on all of our rings for both spinning and twisting without extra cost.

***A product of the Pawtucket Spinning Ring Company, the Ring Department of Saco-Lowell Shops.**

SACO-LOWELL

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD *and* SACO, MAINE; *and* SANFORD, N. C.

SALES OFFICES: CHARLOTTE • GREENSBORO • GREENVILLE • ATLANTA

FOR THE MILL BOOKSHELF

action basic switches. This 28-page, 2-color booklet describes 10 classifications of the standard line of Micro Switch phenolic enclosed, precision snap-action basic switches, including those with high electrical capacity, high sensitivity, single-pole, double-pole, double-break and split-contact arrangements, magnetic blow-out and make-before-break switching elements, and those with sealed construction. Over 400 listings of basic switches, auxiliary actuators and terminal enclosures are covered. Complete with photographs, dimensioned drawings, terminal variations, electrical ratings and technical information, the catalog is intended to aid the design engineer in the proper selection of switches for his particular requirements. (Request Item No. B-36)

Chemicals For The Textile Industry

The textile chemicals department of Rohm & Haas Co. has announced the release of its latest listing of chemicals it supplies the textile industry. The products are classified in groups according to their main field of application, such as desizing materials, resin finishes, dispersing agents, etc. Suggested uses for each are also given. The 7-page booklet supersedes the firm's listing of January 1954.
(Request Item No. B-37)

Precision Plating

Standard Pressed Steel Co. has prepared a 32-page, picture-and-text booklet describing its plating facilities and discussing the history and some of the technical aspects of plating. Among points graphically made is that the diameter of a round piece is increased by twice the thickness of the plating and that the pitch diameter of a thread is increased by 4 times the plating thickness. The booklet repeatedly stresses the importance of having products exactly undersize before plating in order to have them within tolerances after plating. A series of curves show how much undersize a given lot of screws would have to be to finish up exactly right. Requests for the booklet should be made on company letterhead.
(Request Item No. B-38)

Pipe Connections, Unions & Valves

A 12-page, 2-color, combination engineering manual and catalog describes the new Graloc line of Universal pipe connections, unions and bleeder valves manufactured by the Gray Tool Co. Describing a new concept of all-steel sealing with a pressure-aided seat termed by the manufacturer as the Graloc principle, the book shows how this principle has been incorporated into a pipe connection and union covering connection ranges from ½" to 12" and vent-drain-bleeder. Complete descriptions are given of applications which simplify and improve piping systems, as well as results of independent laboratory tests proving the pipe connection to be leakproof for any internal or external condition the pipe is capable of withstanding, from a full vacuum

o the highest super-pressure applications. In addition the book gives complete data on construction, operation, advantages, specifications, dimensions, pressure ratings and prices. (Request Item No. B-39)

Automatic Continuous Bleaching

Milton Roy Co. data sheet J-54-1 describes a continuous bleach system which utilizes a 3-cylinder controlled-volume pump to maintain proper solution concentrations in the peroxide saturator bath used with Becco J-boxes. This system has enabled one manufacturer to handle cloth at the rate of 50 to 250 y.p.m., the company points out. (Request Item No. B-40)

Adjustable Steel Shelving

Standard Pressed Steel Co. has prepared a 2-color, 4-page folder which points up in photographs, cartoons and text the outstanding features of its new Hallowell adjustable steel shelving. Photographs show combinations of the shelving. The open and closed type, the ledge type and various combinations of swinging and sliding doors are featured. The text, which is brief, describes ease of assembly, advantages of various types of shelving, the tight-closing and easy-working features of doors and the usefulness of counter-type shelving. (Request Item No. B-41)

How To Operate A Lift Truck

The 6th printing of *How to Operate a Lift Truck* has been completed by Hyster Co. and the 24-page booklet is now available again free to lift truck operators, supervisors, safety engineers and other interested industrial and governmental personnel. The 2-color cartoon technique used in the booklet is designed for easy reading and is packed with information about the operation of a lift truck, preventive maintenance, safety and basic materials handling. Drawings for setting up an obstacle course are also included. Prepared for use as part of an operator training program, the booklet is slanted for both the beginner and the experienced operator. It can be studied individually by the operator himself or used as a guide by instructors. (Request Item No. B-42)

Prevention Of Rust And Corrosion

Detailed information on the use of sodium nitrite as an inexpensive and efficient rust and corrosion inhibitor is presented in a new booklet offered by the Solvay Process Division of Allied Chemical & Dye Corp. Entitled *Sodium Nitrite for Rust and Corrosion Prevention*, the booklet covers the use of the product alone to protect metal surfaces, primarily iron and steel, or combinations of sodium nitrite with such materials as caustic soda or phosphates for dual purpose applications. The text of the booklet, fully illustrated to show commercial applications, describes in detail: how sodium nitrite protects against rust and corrosion; the use of sodium nitrite in combinations with other materials;

specific applications; means of testing working solutions; and how to handle and store the product. An extensive bibliography is included to provide the reader with additional sources of information on the many and diverse applications of sodium nitrite in the corrosion field.

(Request Item No. B-43)

Slide Rule Catalog

Pickett & Eckel Inc. announces the availability of its new slide rule catalog 164-A. The catalog contains 32 pages on metal slide rules from simple basic units through advanced scale arrangements. Illustrated and described are quality and statistical control, conversion-trig, business and finance, etc. Also included are the single-unit paraline drawing-drafting instrument and the tractorgraph instrument for measuring angles and finishing. (Request Item No. B-44)

Better Storage Methods

How to Double Your Warehouse Capacity is the title of a new 16-page brochure released by The Frick-Gallagher Mfg. Co. Purpose of the booklet is to show that, while there can be no single fixed formula for greater warehouse economy, sizeable savings of space and time are nearly always possible through better use of existing facilities and, where advisable, through the use of special storage equipment. Exploring the science of proper space utilization, the booklet points out the advantage of utilizing ceiling height as well as floor space. The correct use of special-purpose storage equipment, such as long-span shelving and Rotabins, is described at length.

(Request Item No. B-45)

Hose Check List

Plant maintenance engineers and other users of industrial rubber hose will be interested in the new hose check list to obtain longer hose life and better performance, offered by the Thermoid Co. Printed in black on a yellow background for easy reading, the 11-point check list highlights 4 common abuses of hose with drawings. The 8½"x11" chart of stiff cardboard is designed for wall mounting in plant areas where hose is used as a reminder that hose, although ruggedly built, can be damaged by abuse. It is lacquered for protection against moisture, oil, grease and dirt.

(Request Item No. B-46)

Converters' Problems

A booklet issued by William Iselin & Co. Inc. tells how the old-line factoring firm has helped and is helping textile converters to solve what it calls the fundamental problems of their business. The booklet is titled *Converting to Profits*, and is based on recent studies conducted by the company. The fundamental problems discussed in the booklet are: (1) how to finance the volume necessary to produce worthwhile earnings in a highly seasonal business of close profit margins, high operating costs and heavy inventory (usually acquired on short terms and sold on considerably longer ones); (2) how to achieve maximum sales without risk of credit losses and without tying up substantial amounts of working capital to carry customers' accounts; and (3) how to free the converter's time and energies for concentration on activities most productive of sales and profits.

(Request Item No. B-47)

Demineralizing

A new technical reprint T-127 on *The Status of Demineralizing In Today's Plants* is available from Graver Water Conditioning Co. This reprint presents a comprehensive discussion on the subject of demineralization for boiler feedwater, and supplies helpful curves for estimating costs and performances of the systems now available. There are also flow diagrams of the basic types of units and the results that can be obtained from each. Drawings of typical regeneration systems, cut-away view of an ion exchange unit and a table of suitable piping and fitting materials are also presented. Another feature of interest is the chart on estimated chemical operating costs for various demineralizing systems.

(Request Item No. B-48)

Surface Active Agents

Mona Industries Inc. has issued a new, completely revised folder on its line of Monamine surface active agents. The folder contains detailed specifications on the basic grades of Monamines, as well as chemical physical and physiological properties on the entire line. Furthermore, complete information is given on use and compounding and a special sheet with suggested formulations on various types of cleaners and cosmetic preparations is available. The folder is designated No. 220.

(Request Item No. B-49)

Turbine-Generators

General Electric Co. turbine-generators, rated from 2,500-kw. to 40,000 kw., are described in a new 54-page booklet designated GEA-3277C. Condensing and noncondensing applications for electric utilities and industrial plants as well as special turbine applications are covered in detail in the new publication. Cross-sections, schematic drawings and numerous close-up and installation photographs describe applications and features of straight condensing and noncondensing steam turbines. Also detailed are condensing and noncondensing single and double-automatic-extraction, condensing double flow exhaust and triple-automatic-extraction units. Operation of the governing system, valve gears, ventilating and cooling systems, modifications of the basic

standard design to meet special customer requirements and design and manufacturing features are among the major subjects discussed. Diagrams explain the procedure for estimating approximate steam rates for both condensing and noncondensing turbines. (Request Item No. B-50)

Refractories For Boilers

A 20-page bulletin, designed to provide operators of stationary and marine boilers with an authoritative guide for selecting the most efficient and economical refractories for their boilers, has been prepared by the Refractories Division of the Babcock & Wilcox Co. The bulletin, entitled *Boiler Refractories*, discusses the importance of selecting the proper refractory materials and the basic requirements they must meet to avoid the chief causes of refractory failure —such as spalling, shelling, high hot loads, slagging, abrasion, erosion, shrinkage and expansion. Typical uses of firebrick, insulating firebrick, castables, plastics and mortars, in both refractory-lined and water-cooled boilers, are described and illustrated. A separate section is devoted to ashpit refractories, often the cause of considerable maintenance in many types of boilers.

(Request Item No. B-51)

Winders And Winding Machinery

Hobbs Mfg. Co., manufacturer of the Hobbs-Aliquist line of winders, has produced a 12-page brochure describing the unique concept of combining winding machinery and winding engineering in 1 package service. Over the past year Hobbs has found more and more of its customers demanding more than the single service of installation of a winder for a purpose. The close connection of winding and unwinding or rewinding with mass production sequences continually posed a problem of how best to engineer the winding operation including all companion winding machinery. Hobbs began offering complete engineering winding plans to fit the special purposes of the winders purchased and it soon became apparent that the plan was a key factor in the success of the machine. In addition to showing each of the 5 models of Hobbs-Alquist winders and illustrating typical installations of these winders, the brochure illustrates and describes typical companion winding machinery Hobbs has designed and built.

(Request Item No. B-52)

Indicating Temperature Controller

Performance specifications, application ideas and complete description of a new liquid-filled, remote indicating temperature controller are presented in a 2-color brochure available from Fenwal Inc. An unusual feature of the unit, designated as Series 540 controller, is the easy adjustability of the control bandwidth, which can be set between 1 and 4% of scale. Operating range is 100° to 700° F., with control characteristics and sensitivity maintained uniform throughout the entire range. Both the temperature-indicating pointer and set-point display pointer are mounted on the same dial face to allow a quick reference check of process temperature. A single-pole, double-throw power relay, rated at 15 amps, 115 v., is housed inside the dust-tight controller case. (Request Item No. B-53)

Air Filtering

Literature on the new Aerosolve filter is now available from Cambridge Filter Corp. The filter, designed for high efficiency air filtering in ventilating air conditioning systems, has recently been placed on the market. It is reportedly finding wide use in air conditioning systems in both comfort and process applications.

(Request Item No. B-54)

Hydrogen Peroxide Vapor

The interesting possibilities that exist for the technological use of hydrogen peroxide vapor and means of vapor generation are described in Bulletin No. 62, released by the Becco Chemical Division, Food Machinery and Chemical Corp. Presented is a summary of information on hydrogen peroxide vapor illustrated by 3 tables and 2 graphs, as well as a bibliography on the subject. The bulletin is significant in that the bulk of published information deals with hydrogen peroxide in its liquid form. Relatively little is known about hydrogen peroxide in vapor form. A free copy of Bulletin No. 62 may be obtained by using

the reader service reply card carried in this journal. (Request Item No. B-55)

Materials Handling And Storage

Stackbin Corp., manufacturer of materials handling and storage equipment, has announced the release of a 20-page booklet which explains the Stackbin system for handling and storage of parts and materials. The company's complete line of Stackbins, Stackracks, pallets, movable bases, Stackshelves, assembly bins, trucks and storage equipment is illustrated and described in detail. The booklet also contains a number of tables and diagrams.

(Request Item No. B-56)

Sodium Silicate Seal

Philadelphia Quartz Co., manufacturer of all-mineral sodium and potassium silicates, has issued a new folder describing hand or semi-automatic fibre box sealing with the company's sodium silicate trade-marked seal. Illustrated, step-by-step directions demonstrate economy both through efficiency of the ready-to-use liquid adhesive and its low initial cost. The adhesive is said to be odorless, non-poisonous, fireproof, resistant to vermin, rodents and mold. Copies of the folder are available on request on letterhead stationery to this publication.

(Request Item No. B-57)

Lubrication Of Electric Motors

New York & New Jersey Lubricant Co. is offering a useful bulletin on *Lubrication of Electric Motors: Ball and Roller Bearing Type*. Complete with graphic illustrative material, Bulletin No. 504 describes proper methods for lubricating and cleaning ball and roller bearings on electric motors. Valuable information explaining how to prolong the life of bearings is contained in the bulletin. Free copies may be obtained by using the reader service reply card in the new products section of this journal.

(Request Item No. B-58)

Power Transmission

The American Pulley Co. announces the issuance of 4 new catalogs covering its line of Wedgbelt (V-belt) drives, speed-reduction drives, flat-belt drives and steel conveyor pulleys. Each is fully illustrated and contains selection and dimensional information as well as engineering data. These catalogs contain many new features. Some significant ones are: *Wedgbelt Drive Catalog* (WBC-55-2)—new horsepower ratings for V-belts; new super-service wedgbelts offering greater-than-standard strength and life-expectancy; newly-developed single Q, R and W drives serving space-saving adjustable-speed requirements up through 30 h.p.; *Conveyor Pulley Catalog* (CPC-55-2)—the development of and improvements in American conveyor pulleys; design features that go into making these pulleys; and complete dimensional tables are all covered in this catalog. The new HD (heavy-duty) conveyor pulley line with Wedge-Tite hubs is also fully explained; *Shaft-King Speed Reduction Drive Catalog* (SRC-55-2)—this catalog covers, in summary form, just what the Shaft-King shaft-mounted speed reducer is; a resume of its features; the benefits coming from the use of shaft-mounted speed-reduction drives in industry today; the newly-available vertical units and units equipped with Internal Backstop, with full descriptions of both; *Flat-Belt Drive Catalog* (FBC-55-2)—included in this catalog are specifications for steel split pulleys, hi-torque motor pulleys, shaft collars, shaft hangers and bearings and American Econ-O-Matic motor bases.

(Request Item No. B-59)

Agilon Stretch Yarn

Deering Milliken Research Trust has announced the release of a booklet describing the properties and application of Agilon stretch yarn. The booklet describes Agilon stretch yarn as "a new and versatile non-torque elasticized nylon filament yarn and combination yarns consisting of elasticized nylon yarn and other textile materials, especially cotton." According to the booklet, the new yarn is adaptable to the manufacture of various woven fabrics.

From a technical standpoint, Agilon is said to enjoy an exceptional advantage in the fact that it is a non-torque yarn and may be produced as singles yarn. Thus it may be knitted or woven as singles yarn, or in as many plies, even or odd, as may be desired. Consequently extreme sheerness may be attained as well as heavier weights. Although the first market-wise application of the new yarn is in women's nylon hosiery, the value of Agilon combination yarn in knitted garments has stimulated the interest of cotton spinners who process these yarns for use in various knitted garments as well as in hosiery. The manufacture of these combination yarns, which may be accom-

plished in one operation and at a high production rate, is said to open new markets for cotton yarn producers.

Because of the new properties inherent in Agilon stretch yarn, arising from the novel technique of its manufacture, this yarn has been found peculiarly adaptable to men's and boys' hosiery, the booklet points out. This is particularly true of such hosiery made of Agilon combination yarn-elasticized nylon filament with cotton or wool. The resilience of the yarn assures a good fit in toe, heel and ankle, and at the top of the sock, according to the booklet.

(Request Item No. B-60)

Directory Of Commercial And College Testing Laboratories

(American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.; 48 pp.; 8x10½; paper cover; $1)

This directory is a successor to the *Directory of Commercial and College Laboratories,* published in 1947 by the U. S. Department of Commerce, National Bureau of Standards, as Miscellaneous Publication M 187. Responsibility for its compilation and publication has been transferred from the National Bureau of Standards to the American Society for Testing Materials by agreement between the 2 organizations. The directory lists the locations of testing laboratories equipped and prepared to undertake testing on a commercial or fee basis. Information is given concerning 278 commercial testing laboratories and their 151 branches or offices. There is also presented a list of the laboratories of 86 colleges that are prepared to do testing under certain conditions. Research and consulting laboratories are not listed unless they also are engaged in testing on a commercial basis. The directory is designed to be of assistance to firms not equipped to make their own tests. Using a code system of letters and numbers in order to include a maximum of information in a minimum of space, the directory will give the user a good indication of the laboratories most likely prepared to undertake the tests desired. It does not pinpoint every possible test within the many laboratories, but when used as the guide it is intended to be, the user can select the nearby laboratories which will most likely be able to fulfil his testing needs.

Chemical Technology; Wool Shrinkage; Worsted Combing

The Chemical Publishing Co. Inc., 212 Fifth Ave., New York 10, N. Y., has announced the publication of the following books. *Pocket Book of Chemical Technology* (V. Stannett and L. Mitlin, $4.75) is a handy volume which contains essential information frequently needed in the less bulky form than the very complete handbooks. It includes both chemical and chemical engineering data. The material is presented in such a form that it should be useful to specialists, as well as those without a formal technical education. An extensive glossary of chemical and engineering terms and a detailed index are additional features of the book.

Wool Shrinkage And Its Prevention (R. W. Moncrieff, $10.50) is a compilation of the results of extensive research on wool shrinkage. The fundamentals of wool fiber structure, shrink resistance and the methods used for the prevention of wool shrinkage are discussed in detail from the viewpoint of not only the wool industry but also the manufacturers of blended fabrics containing wool. The introductory chapters deal with the structure, chemical and physical properties of wool fibers. In the next section, the general problems of relaxation and felting shrinkage are discussed, together with the directional frictional effect and its measurement. Several chapters are devoted to the most modern methods of imparting shrink resistance to wool. The last section treats the methods of determining the damage caused by the various proecsses and tests for their efficiency. Original sources are given throughout.

Practical Worsted Combing (T. F. Griffin, $4) is an attempt to impart knowledge which will be useful both to those employed in the actual processing of material in the combing section of the worsted industry and to others associated with the industry. It has been assumed that the reader already has a general knowledge of worsted combing and most of the elementary matter has been omitted. Almost all features of the machines are described and the reasons for the various settings explained.

Serving The Textile Industry

Greensboro Loom Reed Co. Opens New Plating Plant

The newest and one of the most modern laboratories and plants for hard industrial chromium plating has been put into operation by the Greensboro (N. C.) Loom Reed Co. The new 6,000 sq. ft. plant will enable the company, known for many years as an outstanding manufacturer of loom reeds and expansion combs, to offer complete plating service not only to the textile industry, but to industries throughout the area served by the firm.

The new plant provides adequate space for an efficient laboratory, modern polishing and buffing machinery and the plating room with tanks of various sizes and depths to process metal of virtually any size on which plating is desired. According to George A. McFetters, founder and president of the company, all of the extensive, high amperage equipment is new and of the most modern design. Bell and Gossett flow control valves and Fulton Sylphon hot water temperature regulating valves with extended lead-shielded bulbs provide the perfect temperatures for plating most kinds of metal in general use in industry. The polishing room is also equipped with a Vapor Blast machine which, by air pressure, blasts the metal to be cleaned with an abrasive compound mixed with water. This process is used to remove excessive rust and scale, an important factor in proper plating.

The company, which has offered plating operations since 1935, is licensed by United Chromium Inc. of Waterbury, Conn., and a constant check is made on all plating solutions used by Loom Reed to assure highest quality plating. Quality plating, the company points out, adds greatly to the life of the metal. Only corundum, boron and the diamond exceed metallic chromium in hardness, and chromium is twice as hard as hardened steel, according to Mr. McFetters.

The plant, at 725 Kenilworth St., Greensboro, will be managed by J. D. Brower, secretary of Loom Reed. He is also superintendent of the loom reed installation.

John L. Stickley & Co. Opens New York Office

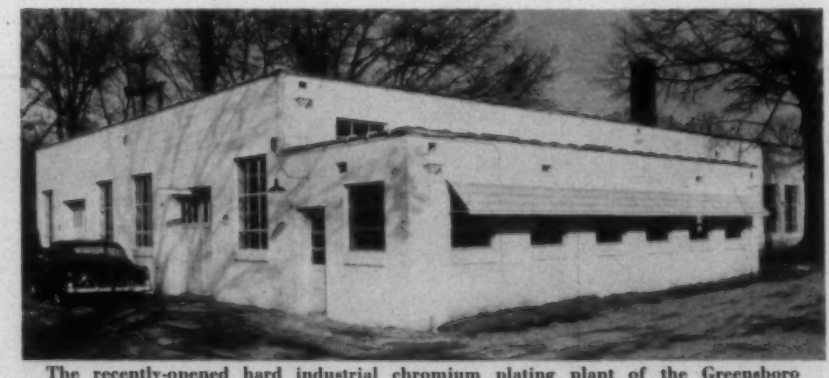
John L. Stickley & Co., Charlotte, N. C., has established a New York sales office at 225 West 34th Street under the management of R. Lee Pickens. Mr. Pickens has been calling on New York and New England accounts the past few years. Stickley is sales representative for worsted and synthetic yarns of the Oxford Division of Burlington Mills Corp., and the yarn division of Peerless Woolen Mills, Rossville, Ga., a wholly-owned Burlington subsidiary.

Warp Compressing Machine Named Thread Guide Agent

The Warp Compressing Machine Co., 103 Exchange St., Worcester, Mass., manufacturer of textile equipment, has been appointed sales representative for Bor-al-sil thread guides manufactured by Richard H. Bird & Co. Inc., Waltham, Mass. Joseph Moeller, sales engineer for Warp Compressing, will be in charge of sales.

Gardner-Denver Merges With Keller Tool Co.

Managements of the Gardner Denver Co., Quincy, Ill., and of the Keller Tool Co., Grand Haven, Mich., have announced that the stockholders of both companies have approved a consolidation. Keller now becomes the Keller Tool Division of Gardner-Denver and will continue operations under the former Keller management. E. V. Erickson, president of Keller, has been elected an executive vice-president of Gardner-Denver, and Gifford V. Leece remains as president of Gardner-Denver. Gardner-Denver was established in 1859, and now manufactures a complete line of centrifugal and reciprocating pumps, portable and stationary air compressors, air tools for plant maintenance and other pneumatic equipment. The Keller Tool Division manufactures portable pneumatic tools. Sales activities of the 2 companies will be co-ordinated.



The recently-opened hard industrial chromium plating plant of the Greensboro (N. C.) Loom Reed Co. contains 6,000 square feet of floor space for offices, laboratory, polishing and buffing rooms and a modern, temperature-controlled chromium plating room with tanks large enough to meet most industry requirements.

Old Dominion Box Co. Marks 50th Birthday

Old Dominion Box Co., Charlotte, N. C., recently marked its 50th anniversary as a "Southern boxmaker with a national reputation." Founded in Lynchburg, Va., in 1950, the company now has 7 plants with 2 subsidiary companies. The firm opened its largest plant at Charlotte in 1929. Edwin S. Dillard is president of the company. He is the son of David Hugh Dillard, now chairman of the board.

Glover Southern Inc. Sold To Steel Heddle Mfg. Co.

Glover Southern Inc., Greensboro, N. C., has been purchased by Steel Heddle Mfg. Co. from R. E. L. Holt Jr. & Associates. The business will be operated as a subsidiary of Steel Heddle for the production of bobbins, it was said. Glover Southern was established about 2 years ago. An official of Steel Heddle reported that Mr. Holt and others with Glover Southern would be continued in sales.

Cronland Warp Roll Co. Expansion Now Underway

Cronland Warp Roll Co., Lincolnton, N. C., is constructing a 4,000 sq. ft. addition to its plant that will almost triple the firm's present office and storeroom space. B. M. Cronland, president of the company, stated that the new addition is expected to be completed by Spring. It is the fourth expansion for the firm within the past 4 years.

Davis Named McLean Head; "Sea-Land" Plan Pending

Paul P. Davis of Winston-Salem, N. C., has been elected president and treasurer of McLean Trucking Co., Winston-Salem, succeeding Malcolm P. McLean. Mr. McLean, founder of the firm, resigned in order to comply with provisions of the Interstate Commerce Act, and conveyed his stock in terest in McLean in trust to the U. S. Trust Co. His resignation was tendered Jan. 21 just prior to the purchase of 2 subsidiaries of Waterman Steamship Corp., Pan-Atlantic

Steamship Corp. and Gulf Florida Terminal Co. Inc. by McLean Securities Corp. of which Mr. McLean is the principal stockholder. According to Mr. Davis, plans have not changed for McLean to acquire S. C. Loveland Co. Inc. and to inaugurate McLean "Sea-Land" service to transport motor freight trailers by water between selected ports along the Atlantic coast.

Firm Chartered To Make Textile Cleaning Systems

SpinSaVac Corp., Charlotte, N. C., has been granted a North Carolina charter to manufacture cleaning and reclaiming systems on spinning frames, drawing frames and other textile machinery. Temporary offices of the firm have been established at 1438 S. Tryon St. W. W. Hewitt is president; George A. White, vice-president; and B. S. Powell, secretary-treasurer. Authorized capital stock is $100,000.

United Aniline Moves Into Larger Quarters

United Aniline Co. announces the opening of new and larger laboratory and manufacturing facilities at Norwood, Mass. The dyestuff and auxiliary chemical manufacturer was formerly located at 156 Pearl St., Boston, Mass. The new laboratory facilities are available for all tests incidental to the use of dyestuffs, the company points out. Light, washing, crocking and other testing equipment is also available. Another service provided by the firm is its library dyestuff formulas available for re-order. Once a formula has been developed for a specific purpose for a mill, samples are kept in the United Aniline file. Here it is possible to test dye re-orders against type to insure perfect standardization, it is pointed out. The company maintains a branch office at 2236 McClintock Rd., Charlotte, N. C.

Hart Products Corp. Completes Expansion

Hart Products Corp., 1440 Broadway, New York City, has completed a $100,000 expansion of its Jersey City, N. J., plant. Installation of modern all-stainless-steel pressure equipment for the manufacture of nonionic surface active agents and other ethylene oxide condensates was recently accomplished. This new manufacturing unit is fully automatic and is equipped with all modern safety devices and controls for maintaining exact specifications during manufacture. With this latest addition of equipment, Hart will supplement its list of products with a diversified line of nonionic detergents, wetting agents, emulsifiers and, in general, "specification surfactants" to meet exacting requirements.

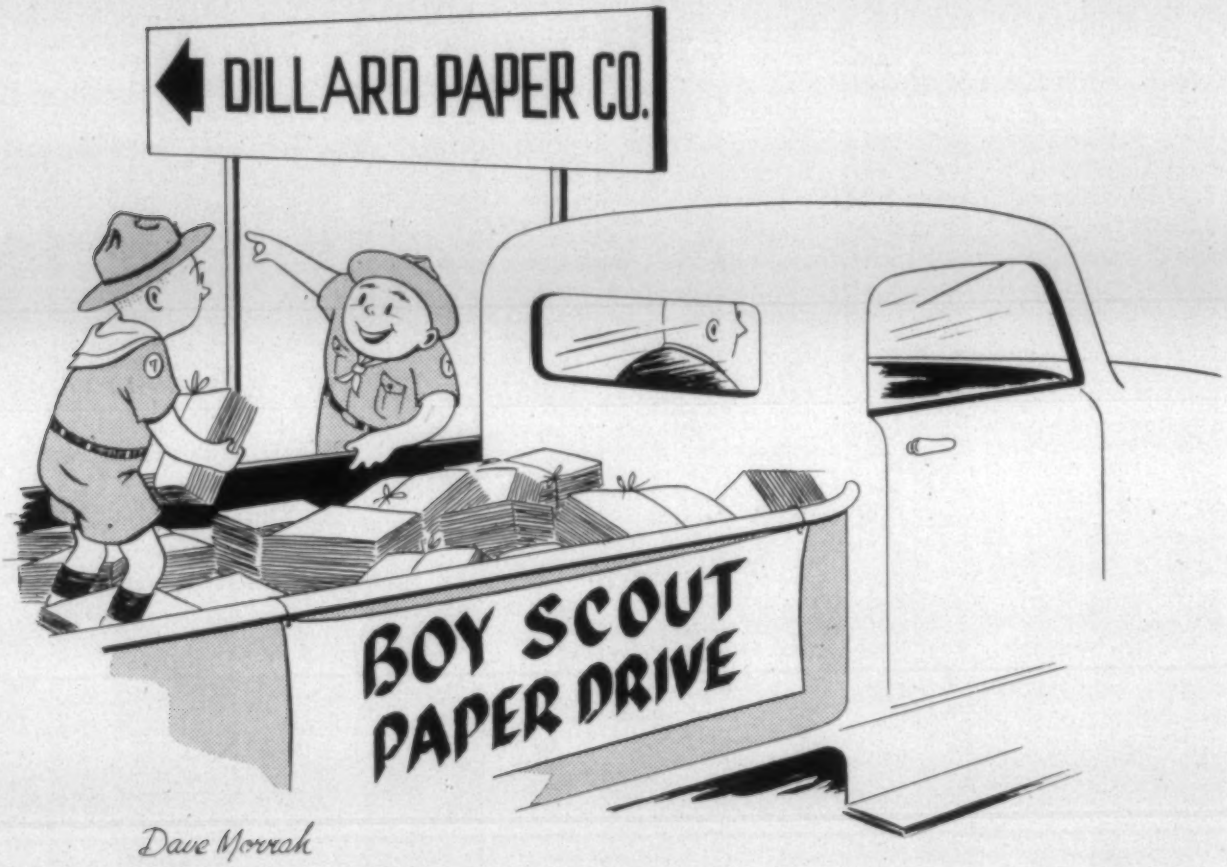
Caster Firm Acquired By Auto Parts Maker

The Colson Corp., Elyria, Ohio, manufacturer of casters, has become a wholly-owned subsidiary of F. L. Jacobs Co., Detroit, Mich., automotive parts manufacturer. According to Colson officials, the move will provide the company with additional working capital and will enable it to implement a long-range expansion program. The first stage of that program includes the construction of a new plant at Elyria containing some 40,000 sq. ft. of floor space. Colson last year became the second largest manufacturer of casters in this country when it acquired the Service Caster & Truck Corp. of Albion, Mich.

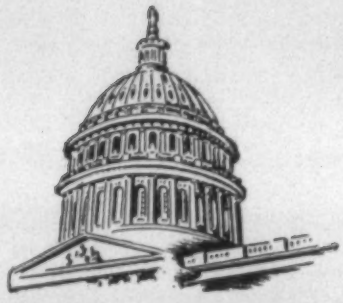
CYANAMID'S NEW DYESTUFF SALES OFFICE IN ATLANTA, AND ITS MANAGER—The organic chemicals division of American Cyanamid Co. recently opened new dyestuff department sales office, laboratory and warehouse facilities at 1370 Spring Street, N.W., Atlanta, Ga.

H. Gillespie Smith *(left)*, newly-appointed Southeastern branch sales manager, will direct the sales of dyestuffs to the states of Alabama, Arkansas, Georgia, Louisiana, Mississippi, Tennessee and a part of South Carolina. The Cyanamid office will be the headquarters for A. C. Anderson, M. Louis Kirby and Jerome A. Franklin, who are serving this area as dyestuff sales representatives. The laboratory will be under the supervision of S. Thomas Holland.

Mr. Smith joined Cyanamid in 1933 as a dyestuff department sales representative with headquarters at Chattanooga, Tenn., and in 1938 was made the Atlanta area representative, a position he held until his present appointment. Before joining American Cyanamid he was an instructor of chemistry at North Carolina State College from 1920 to 1921. He was formerly associated with the Grasselli Chemical Co. Mr. Smith is an active member of the Southeastern Section, American Association of Textile Chemists and Colorists, serving as section chairman in 1950 and 1951, and as councilor from 1952 to 1954.



"Oh, boy! If we could just get in there!"



WATCHING WASHINGTON

[Exclusive and Timely News from the Nation's Capital]

President Eisenhower is putting strongest emphasis on social, health, educational and welfare programs in proposals he is presenting to Congress. At the same time he is holding a tight rein on military spending and national defense. In pursuing this course he is invading the realm of Democratic strategists who hope to build up a strong record of "welfare" legislation for next year's campaign, topped off with some low-bracket tax cuts pleasing to the unions. The President's proposals manifestly have appeal to women voters.

There's a stirring appeal to business interests in some of the President's proposals, even in the face of opposition of the unions. He is driving hard to hold the line against inflation; to get the government out of private business, including public power expansion; to create a better economic climate; and to encourage plant expansion.

Veteran Dan Reed (R., N. Y.) has emerged as the President's major champion in holding the line on taxes in 1955. Two years ago he made a vigorous and losing fight for tax cuts opposed by the President. House Democratic leaders want some tax cuts this year. Mr. Reed says such ideas are "only political jockeying," and if successful, he forecasts a veto which members of both parties would join to uphold.

All government agencies have been ordered by the Budget Bureau to see how fast they can terminate activities competing with private business. They have until April 15 to complete an inventory of their commercial activities, and to report on how many can be reasonably ended. Later this year a more extended inventory, covering services and transportation, is called for.

The government has already divested itself of many of its commercial projects over the last 21 months. The Navy is no longer making its own clothing, and the other military branches are being taken out of the garment business. The Army has sold a $15 million chlorine plant in Alabama; more repair and maintenance work is being done in privately-owned shops and garages, closing down shops often occupied only half of the time.

Fate of all military manufacturing operations will soon be taken out of the hands of service branch secretaries and lodged in Defense Secretary Wilson. The reason is the secretaries are disposed to hang on to their business-type concerns, while the President's policy is to get out. Another step will be closing out the revolving funds under which concerns have been kept going for years without appropriations. Somewhere between two and six billion is wrapped up in these concerns.

Union bosses do not expect to get much that is good from the House Labor Committee in this session, but they do not expect much that is bad, either. The committee's division is 17 Democrats and 13 Republicans, about equally divided on labor issues. Union leaders expect a committee stalemate on most of the controversial issues that come up.

Mr. Eisenhower has no intention, it is indicated, of retreating from his insistence on the Dixon-Yates contract, even if it means a major battle

with Democrats in Congress. Briskly trading verbal blows with the Democrats who are attacking the contract, he made clear his stand is unchanged in opposing government expansion in the power field. Eventually the contract will probably bring on one of this session's prolonged filibusters in the Senate, similar to Tidelands oil.

The President's health insurance program, again presented to Congress, calls for board action on hospital building and personnel training, and in medical care. He asks for stimulated construction of hospitals through government mortgage insurance, with strengthened public health programs, and a reasonable capital fund to re-insure protection against high costs of severe illness, wider health coverage in rural areas, and more health safeguards for low-income groups.

Criticism of the President's golf playing by union leaders led him to inform them he intends to play more often in the future. The contention has been spread among union members by their leaders that he "wastes time" on the golf links. His physician told him he is not playing as often as he should. Most of the big union leaders take long Winter vacations in Florida, Cuba or on the West Coast.

"Right-to-work" laws in the states have become the most emotionally-laden issue with union leaders, exceeding their opposition to the Taft-Hartley Law. With Maryland as the major battlefield, where a proposal is before the legislature, the unions are seeking repeal in each of the 17 states where such laws exist. They call the laws' name a misnomer, and say the intent is to weaken unions and lower wage standards and working conditions.

A.F.L. economists spreaded gloom in all directions as they reported to the union executive council, in its Miami session, on the country's economic outlook. Workers are getting only "modest pay raises," which isn't enough to maintain "buying power," they said. The report was a basis for A.F.L. economic policy. The council decided it wanted the government to spend more money, cut taxes and encourage sizable wage increases. Treasury officials say this is the way inflation started before, and can start again.

Six major railroad unions have decided to make guaranteed annual wages their chief bargaining target in contract renewals this year. Representing about 350,000 shop workers, the unions contend this contract safeguard is essential to curb "drastic and extreme fluctuations and lay-offs in rail employment." President Meany told the unions to be "realistic" in appraising ability of employers to stabilize employment on an annual basis.

So far, the union leaders have successfully dodged an answer to the question of how to guarantee consumption. The economists say that without consumption there is no such thing as a guaranteed wage of short or long duration. Some unions claim that, by ring-around-the-rosy process, money paid out percolates around and stirs up consumption in some products, without knowing what they will be. Some employers call it another vision of pie-in-the-sky.

A.F.L. leaders are opening up a new attack all along the line on the Administration as having an anti-labor slant. The attack is reaching down to Secretary of Labor Mitchell with the allegation he is using new and novel means to undermine union wage standards. The unions wish to use the wage-hour law to resist softening changes arising in the return to a peacetime economy.

All economic aid to Europe should be terminated, and military aid should be re-evaluated, Senator Ellender (D., La.) told the Senate. Reporting on an inspection tour in Europe, he said these countries generally are well off, and their share in over-all defense costs should be raised. All aid should cease, he said, where a country does not meet an improvement grant of the U. S. half way with its own funds.

Vol. 81 February 1955 No. 2

textile bulletin

Publisher . . . . . DAVID CLARK
Editor . . . . . JAMES MCADEN JR.
Field Editor . . . . . JACK KISSIAH
Associate Editor . . . . . ANDREW HEWITT
Assistant Editor . . . . . R. H. HOOD
Inquiry & Reader Service . . . . . EMILY KERNS

TEXTILE BULLETIN is devoted to the dissemination of information and the exchange of opinion relative to the spinning and weaving phases of the textile industry, as well as the dyeing and finishing of yarns and woven fabrics. Appropriate material, technical and otherwise, is solicited and paid for at regular rates. Opinions expressed by contributors are theirs and not necessarily those of the editors and publishers. ¶ Circulation rates are: one year payable in advance, $1.50; three years payable in advance, $3.00;

TEXTILE BULLETIN IS PUBLISHED MONTHLY BY

CLARK PUBLISHING COMPANY

P. O. Box 1225 • CHARLOTTE, N. C. • Telephone ED 3-3173

— Offices and Plant: 218 West Morehead Street, Charlotte 6 —

DAVID CLARK . . . . . *Chairman, Board of Directors*
JUNIUS M. SMITH . . . . . *President and General Manager*
F. R. CAREY . . . . . *Vice-President and Eastern Manager*
(P. O. Box 133, Providence, R. I.—Telephone WIlliams 1-3957)
JAMES MCADEN JR. . . . . *Vice-President*
MARGARET L. ROBINSON . . . . . *Secretary-Treasurer*
R. S. KENDRICK . . . . . *Advertising Representative*
(1430 Clairmont Rd., Decatur, Ga.—Telephone CRescent 4577)
DONALD E. ROBINSON . . . . . *Advertising Representative*
(P. O. Box 133, Providence, R. I.—Telephone WIlliams 1-3957
HENRIETTA MONROE . . . . . *Circulation Manager*
MIRIAM SCRUGGS . . . . . *Production Manager*
ROY M. ANGLIN . . . . . *Mechanical Superintendent*
BEN C. THOMAS . . . . . *Field Circulation Representative*

one year, Canada, $3.00; one year, other countries in Postal Union, $5.00; single copies, 25 cents. ¶ A companion monthly journal, THE KNITTER, is published by Clark Publishing Co. and devoted to the interests of the knitgoods manufacturing industry.

WHY?

While the whole wide world must wonder why, the Eisenhower Administration and the State Department continue their devious and multiple routes toward the promotion of their tariff policy. Associations representing every phase of the textile industry have studied long and hard trying to figure out what the Chief Executive and his *political* advisors hope to gain by sacrificing one of the top five manufacturing industries of this country. Nobody has arrived at a logical conclusion, probably because there isn't one. The whole idea seems to revolve around a blind reliance upon the economic theory of free trade. But the State Department, whose function, incidentally, is in international affairs, seems reluctant to accept the fact that while half of the world is in rags, it is seeking authority to send more coal to Newcastle.

As pointed out by Claudius T. Murchison, economic advisor, American Cotton Manufacturers Institute, in his Feb. 1 appearance before the House Ways and Means Committee, the primary effort to accomplish this is H. R. 1, which would extend the present trade agreements act and authorize the President to cut tariffs by as much as five per cent for the next three years. Under present regulations the President has the authority to cut the duty on some articles up to 50 per cent. Coupled with H. R. 1, which would go into effect June 12, this could mean the authority to exercise cuts up to 65 per cent in the next three years.

Although the President would not have to exercise this authority, the very fact that he is invested with it is a decided danger. And it is doubly so considering the fact that there would be no defense or recourse against whatever course of action the State Department and Executive Branch of the government might choose to follow.

Domestic competition being what it is and has been, it is completely impossible to expect American producers to make up for the wage differential existing in this country and Japan. The ten-to-one ratio enjoyed by Japan is the difference. Their machinery is new and their efficiency is high—thanks to American dollars. Their raw material and other-than-direct-labor manufacturing costs are about on a par with ours. And, unfortunately, many of our designs are showing up in the export market.

The industry, of course, realizes the necessity of strengthening Japan's economy. But the Administration must be brought to realize that Japan's problem and the entire world trade problem cannot be separated. Nothing can be gained by singling out one industry for the sacrificial altar. All that can result is the decay of that industry and its effect on *this* nation's economy. And that effect would be substantial. To begin with, it would be a severe blow to those employees who have devoted quite a few of their years in attaining the skills required. Some affected would find great difficulty in relocating simply because they would be classified in the "older worker" category, from which many companies refuse to hire. Also to consider are the many industries allied with textiles such as the chemical industry and the machinery manufacturers. And what would happen to the cotton grower?

As has been pointed out, this country's textile industry is not a young industry. Until growth of population and the opening of markets in rags-wearing countries come about, the industry is more than capable of supplying in excess of the nation's needs. Multiple-shift operations and ever-increasing efficiency have swelled the total productive capacity

of the industry to the point where profits have been cut to a minimum for secure operation. Always to consider, too, is the possibility of another world war. What would happen to foreign sources of supply then? What happened to our silk sources 15 years ago?

In view of the threat this legislation poses, we urge everyone who receives this journal, even if you read nothing more, to study and digest the following report Dr. Murchison presented to the House Ways and Means Committee. Since the Ways and Means Committee the second week of this month voted 20 to 5 in favor of extending the President's tariff-making powers, and since indications predict passage of H. R. 1 in the House, it appears that any movement to block this threat must be directed to the Senate. So again we reiterate our plea of last month. Write to your Senator. He is *your* representative. It is your privilege and responsibility to alert him to the thinking of the industry on tariff reductions. He'll listen—votes count.

TEXTILE INDUSTRY SCHEDULE

— 1955 —

Mar. 2-4 (W-F)—Cotton producer mill tour, **A.C.M.I.**, Charlotte, N. C.

*Mar. 2-5 (W-Sa)—**SOUTHERN TEXTILE BASKETBALL TOURNEY**, Textile Hall, Greenville, S. C.

*Mar. 3 (Th)—Textile electrical conference, **A.I.E.E.**, Hightower Textile Building auditorium, Georgia Institute of Technology, Atlanta.

Mar. 10-11 (Th-F)—Annual meeting, **TEXTILE RESEARCH INSTITUTE**, Hotel Commodore, New York City.

*Mar. 15 (Tu)—Area meeting, **A.C.M.I.**, New York City.

Mar. 15-18 (Tu-F)—**COMMITTEE D-13 ON TEXTILE MATERIALS, A.S.T.M.**, Hotel Statler, New York City.

Mar. 17-18 (Th-F)—**SOUTHERN TEXTILE METHODS AND STANDARDS ASSN.**, Clemson House, Clemson, S. C.

Mar. 31-Apr. 1 (Th-F)—**SOUTHERN MUNICIPAL AND INDUSTRIAL WASTE CONFERENCE**, College of Engineering, Duke University, Durham, N. C.

Mar. 31-Apr. 2 (Th-Sa)—Annual meeting, **A.C.M.I., Palm Beach (Fla.)** Biltmore Hotel.

Apr. 2 (Sa)—**EASTERN CAROLINA DIV., S.T.A.**, North Carolina State College School of Textiles, Raleigh.

Apr. 13-15 (W-F)—Annual meeting, **AMERICAN SOCIETY OF LUBRICATION ENGINEERS**, Hotel Sherman, Chicago, Ill.

Apr. 13-15 (W-F)—Annual convention, **ALABAMA COTTON MFRS. ASSN.**, Buena Vista Hotel, Biloxi, Miss.

Apr. 14-16 (Th-Sa)—Annual convention, **PHI PSI TEXTILE FRATERNITY**, Beaconsfield Hotel, Brookline, Mass.

‡Apr. 16 (Sa)—**NORTHERN NORTH CAROLINA-VIRGINIA DIV., S.T.A.**

Apr. 18-20 (M-W)—Packaging conference, **A.M.A.**, Palmer House, Chicago, Ill.

Apr. 18-21 (M-Th)—**NATIONAL PACKAGING EXPOSITION** (sponsored by American Management Assn.), International Amphitheatre, Chicago, Ill.

Apr. 21 (Th, p. m.)—**SOUTH CAROLINA DIV., S.T.A.** (Riegel Textile Corp. as host), Ware Shoals.

*Apr. 23 (Sa)—Spring meeting (on opening, picking, carding and spinning), **TEXTILE OPERATING EXECUTIVES OF GEORGIA**, Hightower Textile Building auditorium, Georgia Institute of Technology, Atlanta.

Apr. 23 (Sa)—**SOUTHEASTERN SEC., A.A.T.C.C.**, American Legion Club, Lindale, Ga.

Apr. 27-29 (W-F)—Annual convention, **COTTON MFRS. ASSN. OF GEORGIA**, Boca Raton (Fla.) Hotel and Club.

Apr. 29-30 (F-Sa)—Annual convention, **DELTA KAPPA PHI** Textile Fraternity, Lowell (Mass.) Technological Institute.

Apr. 30 (Sa)—**PIEDMONT SEC., A.A.T.C.C.**, Hotel Robert E. Lee, Winston-Salem, N. C.

May 4-5 (W-Th)—Spring meeting, **THE FIBER SOCIETY**, School of Textile Technology, Alabama Polytechnic Institute, Auburn.

May 4-6 (W-F)—Insurance conference, **A.M.A.**, Hotel Statler, New York City.

*May 6-7 (F-Sa)—**COTTON MERCHANDISING CLINIC** (sponsored by Cotton Economic Research, Cotton Research Committee of Texas), Driskill Hotel, Austin, Tex.

†May 7 (Sa)—**PIEDMONT DIV., S.T.A.**, Catawba Country Club, Hickory, N. C.

May 9-14 (M-Sa)—**NATIONAL COTTON WEEK** (sponsored by National Cotton Council of America).

May 12-14 (Th-Sa)—Annual outing, **CAROLINA YARN ASSN.**, The Carolina, Pinehurst, N. C.

†May 16-20 (M-F)—**NATIONAL MATERIALS HANDLING EXPOSITION AND CONFERENCE** (sponsored by American Materials Handling Society), International Amphitheatre, Chicago, Ill.

May 18-20 (W-F)—**NORTH CAROLINA INDUSTRIAL SAFETY CONFERENCE**, Hotel Robert E. Lee, Winston-Salem.

‡May 20 (F)—**WASHINGTON SEC., A.A.T.C.C.**

May 23-25 (M-W)—General management conference, **AMERICAN MANAGEMENT ASSN.**, Hotel Roosevelt, New York City.

May 26-28 (Th-Sa)—Annual convention, **SOUTH CAROLINA TEXTILE MFRS. ASSN.**, The Cloister, Sea Island, Ga.

†May 31-June 3 (Tu-F)—**DESIGN ENGINEERING SHOW**, Convention Hall, Philadelphia, Pa.

*June 2-4 (Th-Sa)—**AMERICAN COTTON CONGRESS**, Harlingen, Tex.

June 3-4 (F-Sa)—Annual outing, **SOUTHEASTERN SEC., A.A.T.C.C.**, Radium Springs, Albany, Ga.

June 10-12 (F-Su)—Annual outing, **PIEDMONT SEC., A.A.T.C.C.**, Mayview Manor, Blowing Rock, N. C.

June 16-18 (Th-Sa)—Annual convention, **S.T.A.**, Mayview Manor and Green Park Hotel, Blowing Rock, N. C.

June 25-July 10 (Sa-Su)—**INTERNATIONAL TEXTILE EXHIBITION**, Brussels, Belgium.

June 26-July 1 (Su-F)—Annual meeting, **AMERICAN SOCIETY FOR TESTING MATERIALS**, Chalfonte-Haddon Hall, Atlantic City, N. J.

Sept. 6-17 (Tu-Sa)—**PRODUCTION ENGINEERING SHOW**, Navy Pier, Chicago, Ill.

Sept. 8-9 (Th-F)—Fall meeting, **THE FIBER SOCIETY**, Massachusetts Institute of Technology, Cambridge.

Sept. 10 (Sa)—**SOUTHEASTERN SEC., A.A.T.C.C.**, Ralston Hotel, Columbus, Ga.

Sept. 16-17 (F-Sa)—Annual meeting, **COMBED YARN SPINNERS ASSN.**, The Homestead, Hot Springs, Va.

Sept. 20-21 (Tu-W)—**CHEMICAL FINISHING CONFERENCE** (sponsored by National Cotton Council of America), Chalfonte-Haddon Hall, Atlantic City, N. J.

Sept. 22-25 (Th-Su)—National convention, **A.A.T.C.C.**, Chalfonte-Haddon Hall, Atlantic City, N. J.

Oct. 13-14 (Th-F)—Annual meeting, **NORTH CAROLINA TEXTILE MFRS. ASSN.**, The Carolina, Pinehurst, N. C.

*Oct. 17-19 (M-W)—Fall meeting, **NATIONAL COUNCIL FOR TEXTILE EDUCATION** (American Textile Machinery Assn. as host), The Larches, Hopedale, Mass.

Oct. 27-28 (Th-F)—Annual convention, **THE QUARTERMASTER ASSN.**, Conrad Hilton Hotel, Chicago, Ill.

Oct. 29 (Sa)—**PIEDMONT SEC., A.A.T.C.C.** Hotel Barringer, Charlotte, N. C.

*Nov. 3-4 (Th-F)—Textile electrical conference, **AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS**, North Carolina State College, Raleigh.

Nov. 10-11 (Th-F)—Annual meeting, **CARDED YARN ASSN.**, Bon Air Hotel, Augusta, Ga.

Dec. 3 (Sa)—Annual business meeting, **SOUTHEASTERN SEC., A.A.T.C.C.**, Biltmore Hotel, Atlanta, Ga.

— 1956 —

Apr. 5-7 (Th-Sa)—Annual meeting, **AMERICAN COTTON MFRS. INSTITUTE**, Hollywood Beach Hotel, Hollywood, Fla.

‡June 14-16 (Th-Sa)—Annual convention, **SOUTHERN TEXTILE ASSN.**, Ocean Forest Hotel, Myrtle Beach, S. C.

Sept. 10-12 (M-W)—National convention, **A.A.T.C.C.**, Waldorf-Astoria Hotel, New York City.

Sept. 10-15 (M-Sa)—**PERKIN CENTENNIAL** (sponsored by various professional societies and trade associations), Waldorf-Astoria Hotel, New York City.

**Listed for the first time this month.* *‡Tentative listing.* *†Changed or corrected from previous issue.*

(M) Monday; (Tu) Tuesday; (W) Wednesday; (Th) Thursday; (F) Friday; (Sa) Saturday; (Su) Sunday

textile bulletin

VOL. 81 FEBRUARY 1955 NO. 2

'Do for Others As They Have No Intention of Doing for You'

The Administration's Tariff-Slashing Program And What It Means To The Textile Industry

By DR. CLAUDIUS T. MURCHISON, Economic Advisor, American Cotton Manufacturers Institute

THE TEXTILE PRODUCTS INDUSTRY is one of the great industries of America and about three-fourths of it is composed of the cotton textile industry. To give it exact ranking is difficult because of the technical and sometimes arbitrary nature of industry definitions. But it is enough to know that by the usual measurements it is one of the top five of the manufacturing industries of the United States, the others being food, chemicals and allied products, motor vehicles, iron and steel, and machinery manufacture.

Stockholders' equity and borrowed capital of the textile products industry are reported by the Federal Trade Commission as being 8.3 billion dollars, which is about five per cent of the total for all American industry. If we add the apparel and finished goods industry, which is merely an advanced stage of the textile products industry, the total of invested capital or assets, however we wish to term it, becomes 11 billion dollars, or about 6.5 per cent of over-all total of American industries.

This giant activity employs roughly 2¼ million people who are about evenly divided between the two major divisions. In a number of states, and in many localities and areas, textile employment is the most important single source of income, and in several states such employment exceeds that of all other manufacturing activities combined.

We propose to show that the textile mill products industry, and the closely related apparel manufacturing industry, are seriously threatened by the administration of tariff policy under existing legislation, and that the effect of H. R. 1 would be greatly to intensify the threat of damage, or even destruction, which already confronts us. We would like to emphasize this statement without impairing its meaning by stating that H. R. 1, if enacted, would complete the process of entrusting the jobs and the well-being of 2¼ million textile workers to the executive division of government, more specifically the State Department, as an incident of our foreign economic policy.

We propose to show that no effective criteria are provided either to guide or to limit the State Department in the exercise of this great responsibility. Even more important is the absence of any effective recourse or defense against whatever course of action the executive division of government might choose to follow.

We propose to show that, in fact, H. R. 1 would represent the final installment of power to destroy the textile industry of the United States. We do not say that this power will be fully exercised, but its incorporation in the hands of an agency whose function is normally and rightfully restricted to international affairs is a violation of our concept of constitutional government and a danger of the first magnitude.

Not So Simple As Just H. R. 1

While H. R. 1 is being debated in terms of its specific provisions, the government has under way four other foreign trade operations whose completion will completely transform the significance of those provisions.

The effects of the bill, therefore, cannot be judged by relating its provisions to the current trade and tariff structure, or to the current tariff powers of Congress. Before its effective date, if enacted, important portions of the tariff structure, as we now have it, will be dismantled and the tariff-making responsibilities of the Congress may be seriously impaired, if not abrogated.

These impending events are the goals of the following scheduled operations: (1) the renegotiation of G.A.T.T. as an international agency of trade and tariff control; (2) the announced intention of the Chief Executive to seek Congressional ratification of G.A.T.T.; (3) the scheduling of another round of multilateral tariff concessions among G.A.T.T. members beginning in February; and (4) intention to negotiate a bilateral trade agreement with Japan, and to press for the admittance of Japan into G.A.T.T.

The first of these, the renegotiation of G.A.T.T., has been in process for some weeks. The outcome is uncertain, the conflicts of interest are bitter. Certain members may resign, others may withdraw concessions as permitted by Article 28. Large-scale revisions of the over-all tariff structure may, in consequence, have to be made, involving previous concessions in addition to the long list of articles to be newly negotiated. Also up for renegotiation are the policy pro-

visions of G.A.T.T. relating to such vital matters as quotas, subsidies, exchange restrictions, trade discrimination and internal economic programs.

How can Congress or the industry judge H. R. 1 as to its ultimate effects without knowing the outcome of these negotiations?

The second tariff operation aims at the Congressional ratification of G.A.T.T. It is possible that Congress may be requested to impart treaty status to this organization. Such action could transform G.A.T.T. into a supra-national instrumentality whose authority would seriously limit the trade controlling powers of the Congress.

In this event, present judgments of H. R. 1 as appropriate legislation would no doubt undergo radical change. In fact the possibility of further tariff legislation of any kind might be ended, at least for the duration of G.A.T.T.

The negotiation of new tariff concessions, beginning at Geneva in February, we refer to as Operation No. 3 to maintain the distinction between the renegotiation of previous multilateral concessions and the negotiation of new concessions. In the case of many articles, as we shall show later, these new concessions could amount to as much as 50 per cent.

In view of this situation, impending tariff changes promise to be vastly greater than those provided for in H. R. 1. It would be well for Congress to know the extent of these changes before authorizing new reductions.

The fourth operation is the announced negotiation of a bilateral trade agreement with Japan and, if possible, the entry of Japan into G.A.T.T. The bill breaks precedent with previous trade agreement acts by singling out a particular country for a trade agreement. The action is all the more unique in that the government already has the power under existing legislation to negotiate such an agreement. Moreover, the bill provides that in the agreement with Japan no duty shall be reduced by more than 50 per cent of the 1945 level. The stipulation merely reaffirms the minimum limits authorized by existing legislation. Why this legislative redundance?

The reason for this "particularistic" action are precautionary and self-revealing. By incorporating the terms of the Japanese agreement in H. R. 1, the Government is enabled to prolong the period of Japanese negotiation to July 1 instead of ending it on June 12 when present legislation expires. July 1 is made the target date because it is currently the termination date of firm commitments under Article 28 of G.A.T.T. This year, the termination date is especially important because of disaffection occasioned by renegotiation and impending Japanese trade agreements either within or without G.A.T.T.

The Method Is Devious

The Government anticipates this contingency by tieing in the beginning date of the Japanese agreement with the final date of firm commitments, thus more nearly assuring that the agreement with Japan, if need be, can play in part the role of successor agreement, so preventing the lapse of many concessions previously granted to other countries. The strategy would seem to have additional precautionary value in that the United States will probably not wish to run the risk of undue strain on its G.A.T.T. commitments. Hence, in the event G.A.T.T. refuses admittance to Japan, or is denied Congressional approval, or undergoes a substantial loss of its own membership, necessitating the renegotiation of previously granted G.A.T.T. concessions, a concurrent trade negotiation with Japan might have to be a wholly separate and distinct proceeding. Accordingly, direct authorization of Congress is sought as the means of lessening both political and legal questionings.

The great care with which the way has been prepared for the Japanese agreement would indicate the expectation of very substantial results by way of tariff reductions. One would expect that Congress would wish to know the extent of these reductions before authorizing additional ones on the basis of July 1955 levels.

Taking the above operations as a whole, the status of the American tariff structure as of next June 12 or July 1 is unpredictable. We can only be sure that it will be far lower than at present.

Against this background of multiple activities, H. R. 1 is revealed as a dangerous and illogical document lacking every important criterion of sound tariff legislation. The authorized 15 per cent reductions over the next three years through trade agreements would begin with the rates existing on July 1, 1955. These are completely unknown quantities. Hence the 15 per cent reduction authorized in the bill may, in effect, turn out to be two or three times that figure as compared with present rates .

The special authorization of a bilateral trade agreement with Japan means that Japan can exhaust concession possibilities based on 1945 rates and then be in line for new concessions based on 1955 rates.

In summary, Japan would get her benefits in three baskets: (a) her own bilateral agreement, (b) the generalization of concessions to be made to other countries through G.A.T.T. (c) new concessions after July 1, either direct or by generalization. These are in addition to the concessions previously granted to Japan through generalization of all tariff reductions made by the United States since the beginning of the Trade Agreement Program .

The power to make unilateral tariff reductions on goods "not imported or imported in negligible quantities" may be exercised either unilaterally or otherwise. The reductions permitted are 50 per cent of the 1945 rates, and on a wide range of articles this percentage can still be fully applied.

The value of the criterion "negligible" is wholly negligible.

In the determination of goods "not imported", the President is not required to relate the condition of non-import to any representative period or to any special circumstances, or any reason whatsoever. In view of the many items involved, this provision may be the most dangerous feature of the bill.

The power to reduce all rates above the 50 per cent ad valorem equivalent down to 50 per cent is the only tariff-making power, the meaning of which is clear and definite. It is to be exercised unilaterally and without reference to trade agreements. In conjunction with his tariff-making powers, the President is instructed to make his rate changes applicable insofar as possible to entire categories. In this way the tariff cuts would be accomplished in wide swaths.

The devious and multiple routes which the Administration is simultaneously following in the promotion of its tariff policy, when viewed all together, are utterly confusing and to our industry completely terrifying.

The "Deal" Hasn't Been Spelled out

Because over 90 per cent of the cotton textile industry's production is represented by the items subject to negotiation at Geneva, we are being forced to appraise the possible effects of H. R. 1 on our industry without having the information vital to such appraisal: namely starting from what level of tariff do the new tariff-cutting powers apply?

The United States Tariff Commission in September 1953 published a study entitled "Effect of Trade Agreement Concessions on United States Tariff Levels Based on Imports for 1952." Table 3 of this study gives the average ad valorem equivalent of rates of duty in effect on various dates on U. S. dutiable imports for consumption in the year 1952. With respect to Tariff Schedule 9—Cotton Manufacturers—this official table indicates that the average ad valorem equivalent based on rates in effect before any trade agreements were made was 36.8 per cent; that on Jan. 1, 21.8 per cent. Thus it appears that the reduction in rates on cotton manufactures from the pre-trade agreement period until Jan. 1, 1953, was 41 per cent and that the reduction from Jan. 1, 1945, to Jan. 1, 1953, has been 27 per cent.

Under existing authority, the President has the power to cut tariff rates in effect on Jan. 1, 1945, by 50 per cent. However, the Tariff Commission figures quoted above *do not* mean that 27 of these 50 percentage points have already been used in previous tariff-cutting actions on cotton manufactures. The Tariff Commission table is based on *dutiable imports in 1952* and, of course, many cotton textile items were imported in 1952 only in negligible quantities or not at all. Thus the indicated 27 per cent reduction in rates simply means that the particular bundle of cotton manufacture imports in 1952 was such that had that particular bundle of cotton goods been imported in 1944 the average ad valorem rate equivalent would have been higher; indeed, would have been at such a level that the actual ad valorem equivalent in 1952 represented a 27 per cent reduction.

However, while very serious tariff reductions have been made since Jan. 1, 1945—the base date for existing tariff-cutting authority—on various important cotton textile items, the great bulk of staple cotton goods have had no tariff reductions since that date.

But many cotton textile tariff rates have already been effectively cut by the process of inflation. Existing tariff schedules provide for lower percentage rates on higher priced cloth. In the case of unbleached cotton cloth the lower rates take effect on values of over 70 cents per pound; on bleached cotton cloth the lower rates take effect on values over 80 cents per pound; and on printed, dyed, or colored

COMPOUNDING A COMPETITIVE DISADVANTAGE—The sample of American fabric being held against the Japanese-made shirt shown above, gives an idea of the competitive disadvantage under which American manufacturers must operate in their home market today. The fabric in the Japanese shirt is made by workers who average about 13 cents an hour or about one-tenth of comparable American workers' hourly wage rate. Female operators in the Japanese garment industry, which is comprised of about 80 per cent women, average a little more than 20 dollars a month. These big differentials in wage costs not only permit such Japanese items to undersell comparable American products in this country by about one dollar per garment at retail, but the pirating of American designs in the patterns used further compounds the Japanese advantage which even present tariffs cannot equalize.

cotton cloth, these lower rates take effect at values over 90 cents per pound. Because the whole level of prices has moved upward sharply since these rate-determining price points were set in pre-war days, far more of the potential imports would qualify under the lower rates for high value items.

Furthermore, cotton textile tariff rates were sharply reduced in several pre-war trade agreements, the most important being those with the United Kingdom and Switzerland. It is the rates then established which still obtained on Jan. 1, 1945—the base date for existing tariff-cutting authority. Indeed, as compared with rates established by the Tariff Act of 1930, trade agreements previously negotiated have already imposed tariff reductions on about 91 per cent of the cotton textile industry's production. These cuts have averaged about 37 per cent. For many individual items they have amounted to as much as 50 per cent, and on a limited number of items the rates have already been reduced by the permissible maximum of 75 per cent of the 1930 level.

Here Is What Could Happen

Cotton textile items representing about 90 per cent of the total yardage output of the U. S. industry can conceivably suffer tariff reductions of 50 per cent at Geneva and under the provisions of H. R. 1 the authority to cut those resulting tariffs by another 15 per cent is proposed. Specifically, as an example, the current tariff rate on unbleached cotton cloth of yarn number 34 and valued at not over 70 cents per pound is 21.90 per cent ad valorem. This could be cut at Geneva to 10.95 per cent and then under H. R. 1 could be further reduced in a three-year period down to 9.31 per cent.

The Tariff Commission table previously referred to, when analyzed in conjunction with the fact that on most countable cotton cloths the President still has his full 50 per cent tariff-cutting powers under existing law, means that most countable cotton cloths are now being imported in what might be considered "negligible quantities" under Section 5 (a) of H. R. 1. That section of the bill before you would authorize the President to cut existing rates on those cotton textile items by 50 per cent by simple proclamation. Thus even should the President at Geneva not avail himself of his entire tariff-cutting authority relative to cotton textiles under existing law, H. R. 1 in Section 5 (a) would, in effect, continue all of his tariff-cutting powers. This may well be the most dangerous provision of H. R. 1 from the standpoint of the U. S. cotton textile industry.

Also scheduled for possible tariff reductions in the Geneva negotiations are the products of this industry's chief customers, including, for example, cotton clothing, chenille rugs, knitted gloves, etc. Practically all apparel items manufactured from either woven or knitted cotton fabrics are on the list. While cotton yarns are not directly included, the list does include a great majority of the products manufactured from cotton yarns.

It is particularly significant that the Japanese have found it profitable, *at existing tariff rates,* to expand cotton textile exports to the United States in a year like 1954 when American textile prices have been depressed. According to the United States Department of Agriculture, United States cotton mill margins in late 1954 were the lowest since July 1952 when the post-Korean price collapse was taking place.

The U. S. Census Bureau reports that since the crop year 1952-53, domestic cotton consumption has declined by about one million bales on an annual basis.

For every dollar the industry earned after taxes in the third quarter of 1953, it made but 40 cents profit in the comparable period of 1954.

Recently there has been a modest improvement in the cotton textile markets. The present revival will, however, surely be reversed should the threat of substantial additional Japanese imports materialize.

Just How Drastic Is the Situation?

The United States Government has apparently made the decision that the textile industry is available for sacrifice on the high altar of foreign trade policy. There are in fact three bits of evidence which, when fitted together, make possible no other conclusion:

(1) The list of items scheduled for tariff concessions at Geneva includes more than 90 per cent of the output of the U. S. cotton textile industry.

(2) H. R. 1 proposes to compound the tariff concessions to Japan by taking as points of departure for further tariff cuts under its authority those new lower rates which will result from the Geneva negotiations.

(3) The list of items scheduled for possible tariff concessions at Geneva and H. R. 1 have been drafted by persons who have access to readily available public information indicating that (a) the cotton textile industry, almost alone among major U. S. industries, has been in a depressed condition despite the general economic boom of the last two years and that (b) the cotton textile industry, on the record, suffered substantial injury from Japanese imports in the last previous peacetime period (the late 1930's) despite the fact that in those years U. S. textile tariff rates were higher than at present.

Besides cotton agriculture, other important segments of the U. S. economy depend upon the continued health of the U. S. cotton textile industry. The cotton textile industry, being one of the largest American industries as measured by output, employment, etc., is a major customer of many other industries. Chief among these are the textile machinery industry and the chemical industry, the latter supplying many hundreds of different products used by the cotton mills. Clearly, any reduction in productive activity of the U. S. cotton textile industry would reduce the markets of the U. S. machinery, chemical and other supplier industries.

We call to the particular attention of the Committee the threat to small business implicit in H. R. 1 when read in conjunction with the list of items subject to tariff concessions at Geneva: the apparel industry is made up almost entirely of small firms; 75 per cent of the cotton manufacturing industry consists of small independent units, none of which has as much as one per cent of the total business; and cotton agriculture is made up of hundreds of thousands of small farms.

State Department Devotion To Free Trade

What does the United States Government hope to accomplish through encouraging additional cotton textile imports? We have given this problem much earnest study and have concluded that there are two basic reasons for the government's attitude toward our industry. The first reason is, we believe, blind reliance upon the economic theory of free trade in the State Department.

The economic theory of free trade is part of a wider theory of free movements of prices and wages. We cannot practice the theory in one part of our economy alone. A moment's thought is sufficient to remind us that in the United States economy of 1955 we have put firm floors under wages through the Wage-Hour Act and under prices through the agricultural price support program.

The cotton textile industry is proud of the fact that over the last 20 years it has succeeded in raising the average wage rate paid its employees by roughly 500 per cent—a much more rapid rise than the increase in the cost of living during that period. We do not want our employees to have to compete with the low wage levels which reflect living standards of the Orient. In any event, employers and employees in the industry would be prevented from competing in such manner by the federal minimum wage law. The only adjustment possible for the industry to make, if it is forced to compete with Oriental wage scales, would be made through the unemployment of its workers and the bankruptcy of its firms.

A good deal of callous comment has been bandied about on the problem of unemployment as related to tariff policy. Advocates of further tariff cuts, when confronted with the fact that these cuts will mean additional imports and that these additional imports will mean reduced production of those items in U. S. domestic plants, frequently take refuge in that aspect of free trade theory which holds that such unemployment is but a short-run problem and that those people who lose their jobs as a result of import competition will find jobs in other industries.

1955 MAID OF COTTON—Miss De Lois Faulkner is a festive figure in a short plaid formal gown. The ensemble, designed by Emma Domb, follows today's trend for a longer torso line. Fabric is a Renoir Everglaze printed cotton satin.

Just Who Loses His Job?

One or two comments on this aspect of free trade theory seem appropriate. In the first place, the unemployed are not statistical ciphers. *They are real live people who have to eat every day, whose children outgrow shoes every other week, and who are attached by habit if not by mortgage to a particular geographic locality.* Furthermore, they possess special skills which, in many instances, required years of apprenticeship to acquire and they are frequently above the age at which, because of pension cost problems, new employers will hire them.

To say that if we import unemployment by cutting tariffs, it will all work out in the long run, sounds very noble indeed but the fact is that *the people involved have to live in the short run and in the long run all of us are dead anyhow.*

Nor can the impact of this unemployment problem be limited to those persons who are without work because their employer has lost his market to foreign competition. The economic structure of whole communities is involved. *In the textile industry, for example, it is quite a typical situation that the cotton mill is located in a small town and its payroll is the economic life-blood of the entire community.* For every 100 civilian jobs in manufacturing in the United States there are 260 jobs not in manufacturing that are related thereto.

For a long period the American proponents of lower tariffs have declared as part of their propaganda that lower wages in foreign countries were offset here by correspondingly higher efficiencies of operation.

The fact is that Japan now has a cotton textile manufacturing industry whose efficiency is equal to or above that of the textile industries of Europe and which compares favorably with the average efficiency of the American industry. The Japanese industry is new. More than three-fourths of their existing capacity has been built since 1945. Their average wages are in the neighborhood of 13 cents an hour, which is one-tenth of the average cotton textile wage in the United States. Raw cotton costs, because of the low cost of ocean transport, are essentially the same in Japan and the United States. Of the remaining costs, about one-half consists of wages. With a wage cost one-tenth of that in the United States, Japan has a tremendous competitive advantage.

The other major reason that our government is encouraging additional cotton textile imports into the United States is, in our opinion, excessive timidity in meeting the real problems of the world economy. One would hardly expect to cure the problems of the world coal industry through the device of taking more coals to Newcastle. It is equally foolish to expect to cure the world textile problem by shipping additional cloth into an American market which is already more than amply supplied by a domestic industry characterized by excess capacity. Half the people on the face of the globe are in rags today. *The real solution lies in increasing textile consumption in the textile-short areas of the world where textile imports are restricted by all sorts of ingenious quantitative and currency control devices.*

We propose that the problem of world trade be met directly. We suggest that our government demand reciprocal performance by other nations on their *previous* trade and tariff commitments to this country, including a return to convertible currencies. Let us exert our influence in the world toward that end.

How To Reduce Carding Waste

By JOHN F. BOGDAN, Director of Processing Research, North Carolina State College School of Textiles, Raleigh

Any program concerned with reducing waste must deal with the two categories of waste: preventable and so-called non-preventable.

Preventable waste has been described as waste arising from end breaks, careless operators, etc. Commonly called "reworkable" waste and often "white" waste, it is not purposely removed and is composed of perfectly good material. Most waste reduction programs deal with this category of waste.

Non-preventable waste has been defined as waste removed in the process of cleaning the fiber or during other manufacturing functioning and is commonly called non-reworkable waste. Since it cannot be returned to the normal manufacturing process, it is true waste, although most of it has some sales value as waste. The research on which this report is based was aimed at preventing, or at least substantially reducing, this so-called non-preventing waste.

This improved carding process, described by Mr. Bogdan during the first session of the National Cotton Council's Cotton Research Clinic at Pinehurst, N. C., Feb. 16, was developed under a research project financed by six textile firms. Under terms of the contract, the sponsoring firms were entitled to exclusive use of the research findings for the year ending Feb. 1. Following Mr. Bogdan's presentation, E. Allen Bentley, vice-president of Swift Mfg. Co., Columbus, Ga., one of the sponsoring firms, discussed application of this waste reduction program in his mill.

COTTON card waste is divided into the following categories:

¶ *Motes* represent the heavier type of waste found beneath the licker-in. They come from seed, seed fragments, leaf, trash and lint removed by the opening and cleaning action of the licker-in and mote knives.

¶ *Fly*, lighter and cleaner, is composed of relatively short fibers that are thrown out between the openings of the mote knives and the licker-in and cylinder screens. In practice, motes and fly are usually combined as one type of waste to facilitate cleaning beneath the card without attempting to separate these wastes.

¶ *Cylinder strips* are removed from the cylinder by vacuum or roll stripping at the end of the stripping cycle. This waste is essentially normal-length fibers that become embedded in the clean clothing when the card is started after stripping; however, it also contains shorter fibers and trash that accumulates during the processing period.

¶ *Doffer strips* are removed from the doffer at the end of the stripping cycle. The composition of this waste is similar to that of the cylinder strips. Cylinder strips and doffer strips are combined and are sold as vacuum strips.

¶ *Flat strips* are the fibers and trash that result from the carding action between the cylinder and the flats. These strips contain a large amount of usable fiber and are the most valuable of card wastes.

¶ *Scavenger or clearer waste* is collected by the revolving flannel-covered clearer roll at the small opening between the licker-in cover and the feed roll. This waste is composed of relatively short fibers that are carried around by the air set in motion by the licker-in.

¶ *Sweeps* are collected from the card room floor. This is composed mainly of lint, but it may contain a considerable amount of foreign matter of vegetable and non-vegetable nature.

¶ *Reworkable waste* is composed of pieces of picker lap removed in starting a new lap and running out an old lap, short lengths of sliver, and the soft roll of fibers formed by the doffer comb when the card is started.

The control of the last two wastes, sweeps and reworkable, is a management problem, the solution of which depends on the proper instruction of picker tenders and card tenders.

The first six types (motes, fly, cylinder strips, doffer strips, flat strips and scavenger/clearer waste) can be controlled to a large extent by mechanical changes and modification of the card. It is with these wastes (Fig. 1) and the changes that affect them that we are concerned in this report.

The average total carding wastes reported by 20 mills is about six per cent of lap weight. The distribution of the major categories as portions of these total carding wastes (Fig. 2) is about as follows: flat strips, 45 per cent; motes and fly, 33 per cent; cylinder strips, 16 per cent; clearer waste, 3.5 per cent; and doffer strips, 2.5 per cent. Since flat strips and motes and fly comprise three-fourths of the carding waste, it is apparent that the greatest saving can be obtained by attention to the control of these wastes.

Motes and Fly Can Be Reduced by Licker-in Assembly Changes and Settings

The amount of motes and fly removed by the action of the licker-in, mote knives and licker-in screen can be reduced to zero by using a solid licker-in screen that extends

from the feed plate to the cylinder. This type of screen is used for carding many synthetic fibers, where cleaning is not one of the necessary functions of the card. This arrangement would not be useful for processing cotton, however, since the trash found in the normal motes and fly waste would be carried to the cylinder, disintegrated between cylinder and flats, and carried forward into the sliver.

At the other extreme, it is possible to process cotton experimentally without using the mote knives or cylinder screen, but under these conditions the amount of waste found beneath the licker-in is prohibitively high. Somewhere between these extremes lies the optimum condition for each variety of cotton.

The amount of motes and fly removed at the licker-in depends on the extent of the openings between the feed roll, mote knives and licker-in screen. One of the simpler ways to reduce the amount of motes and fly is to relocate the position of the mote knives. The normal schedule of card settings specifies the distance between the mote knives and the licker-in and the angle of the top mote knife to the vertical (Fig. 3). The distance between the top mote knife and the edge of the feed plate affects waste removal at these points, but this distance usually is not controlled.

Moving the mote knives to a setting between the top mote knife and the feed plate of 1¼ inches instead of 1⅞ inches reduces fly waste about 0.8 per cent of lap weight (Fig. 4). Increasing the licker-in screen length by five-eighths of an inch reduces fly waste about 0.6 per cent of lap weight (Fig. 5).

Table I shows recommended card speeds and settings evolved from this North Carolina State College School of Textiles research project.

Control of Flat Strips

It is in the control of flat strips that the greatest saving can be made. There is no reason to assume that the normal flat speed of three or 3½ inches per minute is the best speed for all grades of cotton and all production rates. This speed will be found in mills carding long staple Egyptian cotton and in others carding 15/16-inch Good Ordinary.

The rate of increase of flat strips with flat speed is essentially constant. This means that the amount of flat strips is almost directly proportional to flat speed, so that a reduction in this waste can be accomplished by slowing the speed of the flats. Mills can cut the amount of flat strips in half by removing the cylinder pulley (Fig. 6) which drives the flat pulley and running the belt on the hub. (Fig. 7) shows a plot of flat strips expressed as a percentage of lap weight

TABLE I—RECOMMENDED ORGANIZATION FOR CARDING

Speeds:	
Licker-in (r.p.m.)	800
Cylinder (r.p.m.)	165
Doffer (r.p.m.)	(varies)
Flats (in./min.)	0.40
Doffer comb (cycles/min.)	(depends on production)
Settings, thousandths of inch:	
Feed plate to licker-in	12
Mote knives to licker-in:	
Top	7
Bottom	7
Top mote knife to feed plate (in.)	1
Bottom mote knife to bars (in.)	⅞
Top edge of back plate to flats	10
Mote knife angle (degrees)	30
Licker-in screen to licker-in:	
Back	10
Middle	10
Front	10
Licker-in to cylinder	7
Back knife plate to cylinder:	
Top	22
Bottom	68
Flats to cylinder:	
Back	7
Intermediate	7
Intermediate	9
Intermediate	10
Front	12
Flat stripping comb to flats	15
Front knife plate to flats	10
Front knife plate to cylinder:	
Top	34
Bottom	34
Doffer to cylinder	5
Doffer comb to doffer	17
Cylinder screen to cylinder:	
Back	29
Center	68
Front	187
Type of licker-in screen	Bar (7¼ in.)
Type of cylinder screen	Bar

TABLE II—COTTONS USED

Mill	Territory	Staple Length (In.)	Grade Grade
A	Carolinas	1"	LM
B	—	15/16"	LM
C	Miss. Delta	1 1/16"	SM
D	Miss. Delta	1 1/16"	SM
E	Eastern (50%)	1 1/32"	SLM
	Arizona (50%)	1 1/16"	
F	—	1"	M

TABLE III—RECOMMENDED SETTINGS AND EFFECT ON CARD WASTES AND YARN STRENGH

Mill	Mill Waste Figures	Per Cent of Lap Weight Total Carding Waste N.C.S. Carding Mill Settings	N.C.S. Final Settings	Over Mill Settings	Saving Over N.C.S. Carding Mill Settings	Count Strength Product N.C.S. Carding Mill Settings	N.C.S Final Settings
A	6.30	5.24	3.20	3.10	2.04	1917	1968
B	3.60	4.16	2.72	0.88	1.44	1912	2012
C	6.14	4.48	2.31	3.83	2.17	1932	2071
D	5.91	5.57	3.15	2.76	2.42	2470	2438
E	—	7.96	4.16	—	3.80	2305	2329
F	6.36	7.06	2.49	3.87	4.57	2027	1999
Average saving				2.89%	2.74%		

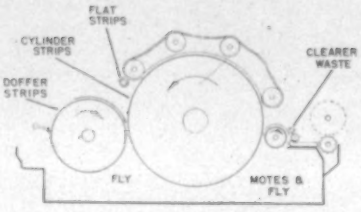


Fig. 1—Location of carding wastes.

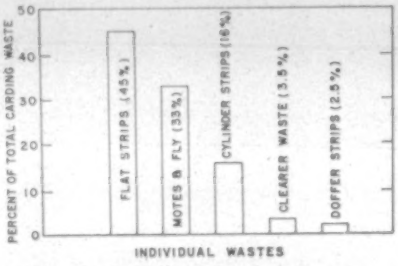


Fig. 2—Distribution of carding wastes.

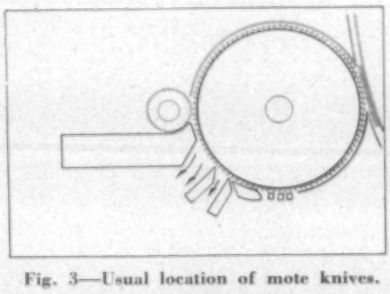


Fig. 3—Usual location of mote knives.

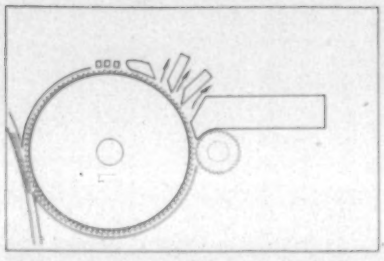


Fig. 4—Recommended mote knife location.

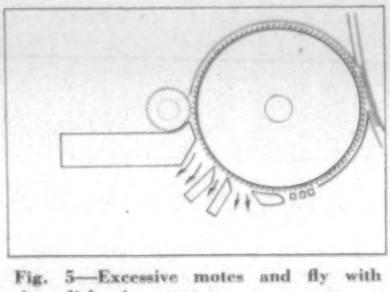


Fig. 5—Excessive motes and fly with short licker-in screen.

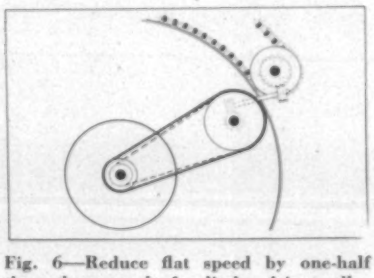


Fig. 6—Reduce flat speed by one-half through removal of cylinder drive pulley and running flat pulley from cylinder hub.

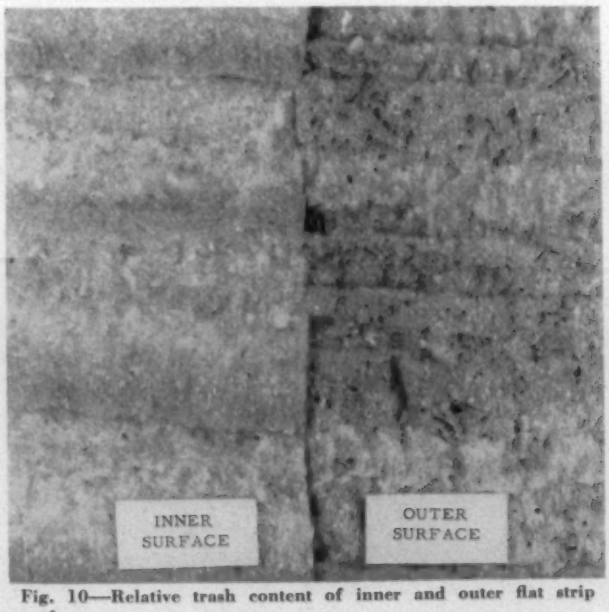


Fig. 10—Relative trash content of inner and outer flat strip surfaces.

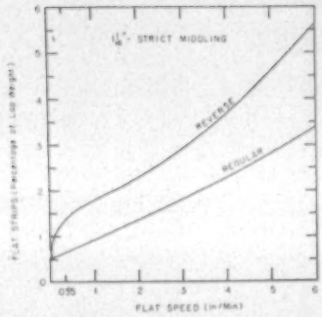


Fig. 7—Effect of flat speed on percentage of flat strips.

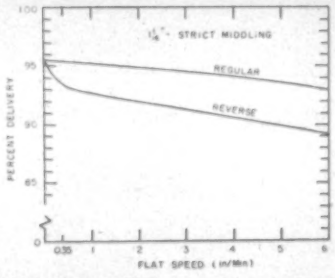


Fig. 8—Effect of flat speed on card sliver delivery.

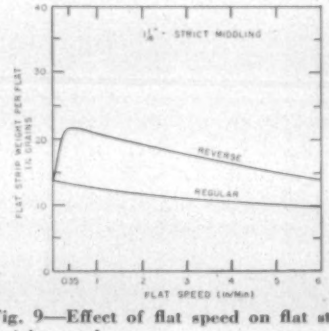


Fig. 9—Effect of flat speed on flat strip weight per lap.

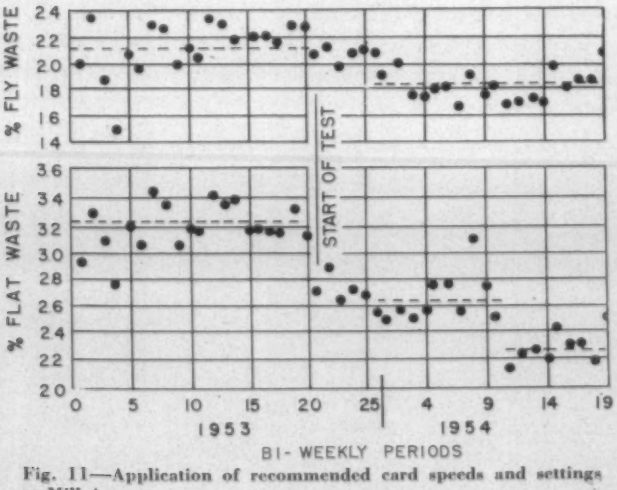


Fig. 11—Application of recommended card speeds and settings at Mill A.

against flat speed in the regular and reverse direction when processing 1 1/16-inch cotton. Fig. 8 shows the sliver percentages plotted against flat speed.

The weight of the strips at various flat speeds is shown in Fig. 9. The amount of stock held by each flat is not proportional to speed. Flats tend to load at the beginning of their cycle of contact with the cylinder. After the flats have become partially loaded they tend to resist the tendency of fibers to enter this space, but they do not appear to prohibit the entrance of leaf and trash. It appears that the fibers which are held by the flats tend to cling to much of the leaf and other particles and prevent their being carried forward into the sliver.

An inspection of the inner and outer surfaces of the flat strips show a difference in cleanliness which supports the contention that the flats are partially loaded with normal material and then choose trash particles in preference to lint. Fig. 10 is a photograph of the two surfaces of flat strips obtained from the processing of flat strips.

Mill Application of Recommendations

One of the participating mills applied the recommended card speeds and settings to half of its cards and has submitted bi-weekly waste figures for about a two-year period (Fig. 11). This plant (Mill A) is operating currently with a card waste reduction of about 1¼ per cent, and will double this saving as soon as the balance of the cards are changed over to the recommendations.

Table II is a listing of the cottons North Carolina State worked with during the research project. Table III shows how use of the recommended settings affected card waste and yarn strength on laps from the six mills.

Warp Preparation & Weaving

The Application Of Nylon For Industrial End-Uses

By GERALD K. LAKE, Burlington Mills Corp., New York City

Application of nylon in the industrial textile field has gone far, but the potential is yet to be realized, according to this authority. This paper, abstracted partially, was delivered by Mr. Lake this month before the regular meeting of the American Association for Textile Technology in New York City.

SUCH phases as "functional fibers for functional fabrics" and "engineered fibers for engineered fabrics" have been used and re-used with real meaning and purpose ever since nylon came onto the scene a little time before World War II. They are nice phrases and have a wealth of meaning, particularly for those of us who have for years been sold on the engineering approach to fabric design. The engineering approach is not new, but the opportunity to use it and to cash in on it has been enormously increased by Dr. Carothers' very real revolution in the field of textile raw materials.

We now have new materials to work with and have in every sense new fields to explore. We, as technologists, are no longer faced with the drab picture of an industry limited, for all practical purposes, to half a dozen fibers all known for centuries and to a few hundred standard constructions representing all the combinations and permutations that could be developed by changing yarn count, thread count, twist multiplier, and width, which in effect defined the fabric. Until a few years ago the fabric designer could only search among the ancient fabrics for inspiration and revival because, like Solomon the Wise, he knew that there was nothing new under the sun. Artificial silk had appeared over the horizon, but its virtue was only in its appearance and economy. In those early days it had but little functional merit. Nylon changed all that, and the functional fabric designer had a new lease on life. This is a cheering thought and should inspire the technologist to further effort—but it is only a concept, and concepts are only platforms from which constructive work can proceed. Let's look at another one.

About 70 per cent, or a little less, of all our textile fibers are cotton. About 20 per cent or a little more are man-made. The balance, largely wool, are the other natural fibers. The cotton business is still the giant of the industry.

About one-third of the cotton business is apparel. About one-third is in household and home furnishings. About one-third is in industrials. Now one-third of seventy isn't far from that 20 per cent of fibers consumed that go to make up the synthetic industry. I mention this because the thought of using nylon and other engineered man-made fibers to replace the cotton fiber immediately presents a picture of taking a step as large as that of all that has been done to date in the expansion of synthetics. In pounds consumed, it can be argued that the cotton industrial business is as large today as is the whole synthetic industry. The world would appear to be our oyster waiting to be opened and have the meat of poundage and the pearls of profit readily extracted. But is this really true? Figures can be deceiving and that is why I have used only approximations in the paragraph above. Industrial fabrics are inclined to have low pickage and heavy yarns. As such, I believe, without having made an actual survey, that on the whole the yarns require less spindles and the fabrics require less looms than would apparel fabrics. Furthermore, cotton is an inexpensive fiber by the pound, and the opportunity for the more expensive synthetics lies only in the cost per gram per denier of the yarns

or in the cost per unit of function in the fabric. As such, any replacement of cotton will be by fabrics of relatively lighter weight and with, of course, a commensurate loss of poundage for the industry.

Nylon came along just before the war. Its first end use of major consequence was in womens' stockings. It came along just as the international situation was one of growing intensity and, as a substitute for silk, could not, if calculated, have been better timed. The stockings, as our wives can well remember, were a great success. Then came the deluge and —if I may quote our friends on Madison Avenue—"Nylon went to war." During those years of pressure "Nylons," as they were known throughout the world, grew scarce, but parachute cloth and the parachute shrouds that went with it replaced the nylon stockings and were, as most of us can remember, in huge demand. Nylon's peculiar property of high elongation and high strength at the point of rupture—in fact its capacity to absorb impact or—to put it another way—its capacity to absorb energy, made it a most desirable fabric for the purpose to which it was put. Similarly, when inflatable pontoons were needed by the Army Engineers, when inflatable life rafts were needed by the Navy and Merchant Marine, a nylon fabric, used as a base for a heavily rubberized cloth, could be and was fabricated into products that did their jobs as had never been done before. Lighter-weight fabrics from nylon and with less coating were used for canopies to protect the occupants of life rafts from the sun. Webbing, tapes and cords of many sorts were asked for by the military and were provided by the industry. Ponchos or rainwear using nylon fabrics as a base and coated with a vinyl coating were developed and used in great quantities—and, later on, nylon fabrics were used, in laminated form, as body armour and in screens as protection against the lighter forms of shrapnel. The industry learned to throw and weave. Problems of heat setting and scouring were solved and nylon had become, after the war, a raw material with which the weavers and finishers were thoroughly familiar.

Honorable Discharge, But Not Ready To Go To Work

The fabrics developed for military purposes were, when the fighting was over, not fabrics that were appropriate for civilian use. There were two reasons for this. One was the evident fact that parachutes are not normally a major requirement for civilians. The other was largely economic. It is, of course, easy to say that a civilian needs protection from the rain as much as does a soldier. Similarly, a diving raft or backyard swimming pool is very similar to a pontoon or life raft. In fact, many of these products, sold as surplus after the war, have been used and enjoyed by the civilian population. Military requirements, however, differ from those of private life. When lives are at stake and the future of one's country depends on men and materials, cost is almost secondary. As engineers attempting to develop new products, we always keep in mind the need for a proper balance between cost and performance. In time of war, the performance is more heavily weighted than the cost. The nylon products of our war-time effort had the performance that was needed but the cost, I think, was more in many instances than the civilian economy would take. The inflatable backyard swimming pool made from cotton drill appeared to be adequate, and it is evident to most of us that an adequate diving raft can be put together from a few boards and some old oil drums more economically than by making use of inflatable rubberized nylon products. The know-how, however, developed during the war years was invaluable, and we were able to move in other directions with startling results.

Abrasive Wheels

Let's take a little one; the volume isn't huge, but the function is an interesting one. Abrasive wheels in certain uses revolve at high rates of speed. The centrifugal force set up is tremendous and a letting go of the forces holding the wheel together can result in little less than an explosion. The solution is a beautiful example of making use of the varying characteristics of different man-made fibers. Glass fabric discs are laminated with nylon fabric discs, and the two fabrics form the base on which the abrasive material is built up. The glass fabric has great strength as strength is usually defined. The nylon has about the same or a little less, but the extensibility of the glass fabric is low and the modulus is high. The extensibility of the nylon is high and the modulus is low. Therefore, as I see the picture, the glass is working while the wheel is turning and the strain is high, but all goes well. The nylon is doing little for the wheel. But, if the strain becomes too large and the forces go beyond the capacity of the glass to contain the wheel within its limits, we do not get a disastrous explosion hazardous to machines and personnel. The nylon stretches at the first take-up of the strain and starts to work. The wheel may be destroyed, but at that critical moment the nylon holds the mass together and by slowing down the rate of disintegration avoids the explosive characteristics of the former product. Here we have a nice example of the fact that strength per se is not enough. There are different kinds of strength and each can be used in its own way. The glass fabric and the nylon fabric can and should be compared by students of the fabrics—but the comparison should not be invidious. The fabrics differ, but in this case, neither is the better. The differing characteristics of each are made best use of.

Laundry Textiles

Another example is to be found in the laundry supply business. In that field it has proved necessary in the commercial laundry to keep the different types of clothing and different customers' batches separate. To do this, nets were used which, filled with clothes, were thrown into the tumbler washer and, of course, washed with the clothes. Heretofore, these nets were made of cotton. Experiments were made with different types of fabrics generally using 260-denier 34-filament nylon in both warp knitted and woven leno form. The results were startling. Not only did the laundry save in soap and chemicals due to its hydrophobic qualities, but due to the great strength of the nylon, the net could be made substantially lighter resulting in a higher poundage of clothing in the washer, and on top of this a marked increase in length of service.

In that same industry, the press cloth used by the laundry, and regularly replaced as it absorbs starch from the clothing, and as it deteriorates from long exposure to relatively high temperatures, and from the laundering that it itself gets in the course of having stains washed out, has moved in large part over to fabrics made from nylon. Some

of these new cloths, which have now come close to being staples, are spun and some are continuous. I am inclined to think the spun fabrics have shown up the better, but there we are involved with special finishes which do not fall into the scope of this paper. The volume in this business is not big. It cannot compare with the volume used in many of the more truly industrial areas, but as an example of the direction in which nylon can be used, it is most interesting.

Tire Cord

Let's jump to another field where the volume is of a very different order. I suppose one of the most dramatic replacements of an old fiber by a new one was in the tire industry when, due apparently to viscose rayon's ability to stand up against degradation from heat, the rayon cord replaced the cotton cord for tires. The economic effect of this change both on the rayon producing industry and on the mills engaged in throwing and weaving the so-called pick fabrics involved is too well known to require comment at this time. Now another change has come, and it would seem that nylon cords may move in on rayon as rayon did on cotton. The use of the nylon cord is relatively new and changes are being made so rapidly that statistics could be deceiving. I have been told, however, that the figures in the actual use of nylon tire cord today have already reached a rate of substantial proportions. The substitution is, of course, not pound-for-pound. The figures naturally vary depending on the make of tire and the service for which it is designed, but I am informed on good authority that a ratio of one pound of nylon replacing somewhere between 1½ and 1¾ pounds of rayon would be a close approximation. In any event, while the poundage of nylon that would seem to be scheduled for consumption will not replace the same poundage of rayon, the quantities may well be of an order greater than that of any single other use. The virtue of nylon in its capacity to resist impact and in its strength for this end use goes without saying. It would not, however, be out of order to add that the excellent consumer acceptance of nylon has made the change that is much easier for the engineers who have developed the product. The emphasis put by the tire companies on the nylon cord in their advertising and promotion would seem to me to have considerable significance.

Typewriter Ribbons

Continuous filament typewriter ribbon fabrics are growing in acceptance with remarkable consistency. When first developed, it was believed that the high strength and resistance to impact of the nylon would result in longer wear than silk or cotton and would, therefore, prove most advantageous. However, the ink lift of a nylon typewriter ribbon is of an order not very different from that of cotton or silk, and a ribbon with days or weeks or months of life in the fabric but without its ink is a quite useless commodity. Why then the success? The answer this time is wholly in the quality of

A New Loom Head

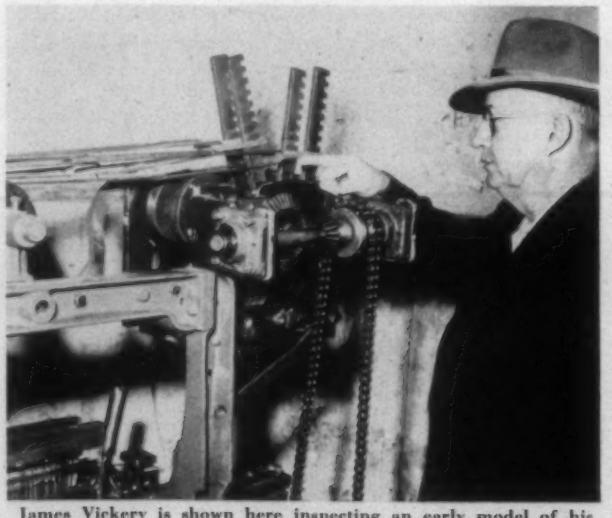
A KANNAPOLIS, N. C., textile worker now employed in Rock Hill, S. C., has applied for a patent on a weaving device designed to simplify cam adjusting on any standard type loom. James Vickery, who has been in textiles for many years, calls his device the Vickery loom head.

As described by him, the device is a compact unit made up of steel, ball bearings, sprocket wheels and chains. It is designed to be attached to the top of the loom instead of underneath, making it easily accessible and eliminating the necessity of crawling under the loom to adjust the cam. Other advantages claimed for the device are that it makes a wider shed, preventing the bobbin from becoming snarled and reducing seconds. With the wider shed, the loom can be operated at faster speeds, Mr. Vickey points out. Because of its simple design and few moving parts, the head sharply reduces maintenance and repair costs.

"Everything runs on ball bearings," notes Mr. Vickery, "there is nothing to lubricate and very little to wear out." He estimates that a unit will run many years without repair. The unit can be installed on either end of a standard loom in about two hours time. It can be attached to either the cam or the crank shaft.

Under development for six years, the device is now undergoing field testing. One unit was sent by Mr. Vickery to the Cotton Economic Research Division, University of Texas. Specialists there have reported to Mr. Vickery that with a few minor changes his invention should work fine. Another unit is reportedly operating successfully at the textile department of Jackson Training School for boys near Concord, N. C. Since these models were sent out, however, Mr. Vickery has incorporated several variations and improvements which now appear on his present unit. The unit pictured here is the one installed at the boys' school.

Production plans have not been fully developed, but Mr. Vickery expects to offer the device at a modest price. The demand for the unit will have some effect on the final price, with mass production offering a lower rate. Dwight E. Walter, also of Kannapolis, is currently handling production and sales for Mr. Vickery. The inventor plans to assemble initial units himself at Rock Hill.



James Vickery is shown here inspecting an early model of his invention. The textile worker-inventor has incorporated a few changes in the device since it was first exposed to field testing.

its performance. The nylon fabric is a low-gauge fabric. Its capacity to wrap itself, as one might say, about the type face at the moment of impact with the paper results in a clarity and neatness of write that makes it most attractive. Performance here is its outstanding virtue. Long life, long wear, are essentially secondary characteristics. It may be noted, however, that due again to its lightness of weight an 18-yard ribbon can be used conventionally where 12 or perhaps 16 yards of cotton customarily are used. As such the ribbon needs to be changed less frequently, and in that sense a longer life is achieved and less fingers are inked and less inconvenience caused to the operators of the typewriters, with a resultant increase in what the office manager would call administrative efficiency.

Conveyor Belts

The field of conveyor belts is a most interesting one. At first glance nylon's high strength and lightness of weight would appear to make it appropriate. However, one can readily see that its high extensibility and low modulus put it under a very considerable handicap if used in warp yarns representing the length of the belt. However, it has been used and may well be used in larger volume in the filling of the fabric. Extensibility of the belt lengthwise is most undesirable. However, within the limits of excessive troughing, extensibility across the belt is not too bad. Particularly where belts are subject to heavy impact and resulting sudden strains, there is a tendency for the belt to split lengthwise, and the use of nylon filling capable of resisting the sudden shock is logical and will, I believe, come into considerable use, particularly if the design of belts is changed to take advantage of the lower gauge and lighter weight that can be obtained from the use of high tenacity viscose rayon.

In this paper I have not once referred to any type of nylon as distinguished from another. The difference between staple fiber and continuous filament speaks for itself, but there are other distinctions and nylon, as we have known it in the last few years, has varied in tenacity from as low as 3½ grams per denier for the staple fiber to as high as perhaps 7½ grams per denier in the high-tenacity continuous filament form. Similarly, the elongation of nylon, which is notable, has varied from as little as 19 per cent or some such figure in the high-tenacity yarns to perhaps as high as 40 per cent in the lower strength staple fibers. Needless to say, these different types and different forms have all been made for various uses, and I think it is fair to say that with an increase in the number of nylon producers we can expect bigger rather than smaller variations in the character of nylon in the months and years to come.

Nylon is here to stay. Its use in the industrial area has been explored, but the practical applications of these explorations have hardly been touched. We have a few success stories. We must and will have more, but what the nylon will be, what form it will take, what type it will be, will remain to be seen, and I can assure you that it will vary from end-product to end-product, and the question of which is better can only be answered within a frame of reference established by the end-product in question.

Bleaching, Dyeing & Finishing

Carrying Developmental Work Through To Plant Vat Dyeing Procedures

By F. O. STONE – Part Three (Naphthols or Azoics)

Azoic, or naphthol, dyes were the result of the use of developed colors and beta naphthol developer. This article attempts to bring out pertinent operating factors for locating trouble spots in naphthol processing and dyeing operation and how they may be partially eliminated, or at least kept to a minimum. Emphasis is placed on the continuous naphthol dyeing of cellulosic fibers and fabrics, and the necessity for careful preparation in quality production.

IT is highly desirable that anyone handling the processing of naphthols be thoroughly versed in the mechanics of preparation of naphthols and fast color bases. By "mechanics" is meant the know-how of the proper dissolving of naphthols whereby a satisfactory solution is obtained that will retain its solubility over the required operating periods necessary to naphtholate goods. Another necessary mechanic is that of proper diazotization of fast color bases into a satisfactory stable coupling agent for the naphtholated goods.

In listening to our good sales friends, there would now appear to be no need to use naphthol powders or fast color bases any longer, since all wide-awake plants have adopted naphthol solutions and fast color salts. The production of naphthol solutions and fast color salts is a fine, progressive step and finds ready acceptance in package dyeing and many of the smaller finishing plants.

To become a thorough naphthol operative, one should be able to evaluate naphthol powders and solutions and the same for comparable use of fast color salts and fast color bases.

In many types of operations a properly handled naphthol powder solution will show greater color yield and ease of

operation as compared to prepared naphthol solution. This same type of evaluation is desirable on the diazotized and neutralized base solution against fast color salt solutions.

This variance is due largely to the necessity of using buffering and stabilizing agents in fast color salts whereas the diazotized fast color base solution is stabilized "fresh" when it is ready for coupling operation with naphtholated goods. Only through knowledge of how to properly evaluate naphthols and bases on a small scale can one obtain knowledge of how to locate trouble in plant operation and help eliminate same.

Selection of Naphthol Combinations for Resin Finishing

Rayon and cotton blends are being finished more widely with resins or given special resin-lustering treatment so it has become desirable to check thoroughly the non-substantive naphthols to determine those that give satisfactory fastness when treated with melamine or urea formaldehyde resin finish.

A majority of naphthol color combinations show decreased fastness to light when treated with the resins listed although the following naphthol formulations show up reasonably well for resin finishing requirements.

Naphthol AS-D coupled with:			Fast Orange GC Salt, Red GL, Red PDC, Red KB, Ponceau L
Naphthol AS-OL	"	"	Fast Orange GC Salt, Red KB, and
Naphthol AS	"	"	Fast Red GL Salt, Blue BB with special after-treatment.

The following color combinations show best results for resin luster finishing as come under the head of patent Schreinering and high calendering temperatures for lustering finishing processes such as Everglaze, etc.; Naphthol AS coupled with Fast GL Salt, Violet B, Red B, Red RC, Red PDC or Orange GC.

Notes on Dyeing with the Azoics (Naphthols)

Azoic dye application is so broad in scope that this discussion shall limit itself to some of the basic dyeing concepts and a practical discussion of contemporary high-speed dyeing methods with this class of dye.

The naphthol dyes assume importance where the vat dyes are at their weakest, that is, for bright deep red, scarlet and wine shades. Simplicity and economy of application are expanding the use of these dyes for navy, brown and black shades. When properly applied their wash fastness is excellent and their light fastness is quite satisfactory. When improperly dyed, however, loosely-bound color is attached to the surface of the fibers and poor crocking and wash fastness results.

Insoluble azo dyes are formed within a fiber from two components which are not originally dyestuffs. One component, the naphthol, is first applied to the fiber by a process called naphtholation, and the second component, an amine, is diazotized and coupled with the naphthol within the fiber to give the final insoluble pigment.

Loosely attached naphthol is the cause of poor naphthol crocking. The coloring material in these dyes, an insoluble pigment, actually has slight affinity for the fiber. In order to get good results with the Azoics, coupling should take place with naphthol particles within the fiber rather than with those on the outside of the fiber. Various dyeing assistants aid in ridding the fiber of loosely attached naphthol by keeping in suspension the particles of insoluble pigment formed during the coupling action. These dispersing agents are sold under various trade names by the dyestuff manufacturers. Their use is mandatory since they are indispensible for keeping the loosely-formed pigments in suspension so that later they can be washed out in soaping—thus giving shades with good crocking fastness.

Several methods can be used for dyeing piece goods with the Azoics. Methods involving pads and jigs are rapidly losing favor because of high costs in time and labor commensurate with low production. The continuous ranges are, of course, recognized as the most profitable way of dyeing cellulosic fibers with the Azoics.

Successful dyeing with the Azoics on continuous ranges is dependent upon the control the dyer has over four factors that fluctuate during the dye run; i. e., padding, drying, developing and after-treatment. Before discussing these four operations it should be noted that there are a number of naphthol combinations that cannot be dyed satisfactorily under the most optimum of conditions, and the dyer should check each shade before attempting any continuous run.

Padding

A properly designed pad is most important if good final results are to be obtained. It is to be remembered that naphthols vary considerably in their substantivity and that, with a few minor exceptions, their optimum dyeing temperature is in the vicinity of 85° F. To minimize any shading that may occur from the varying substantivity of the naphthols the pad-box should be very shallow so as to enhance a rapid turnover of naphtholating liquor. The pad shown in the diagram is so designed that material can be run either straight through the nip (nip padding) or immersed under a small roll (dip and nip padding) when dyeing heavier fabrics. Large rolls will minimize center to selvage shading and are better able to withstand high pressures which are necessary for good penetration and minimum moisture retention. With a pad of this type construction, substantive and non-substantive naphthols can be run together evenly without fear of any varying exhaust.

High padding temperatures (175 to 200° F.) further minimize varying naphthol exhaust rates. With medium shades, temperatures of 175 to 180° F. are quite satisfactory, and alcohol is an efficient solvent for naphthol. Padding at temperatures around 200° F. is beneficial in keeping heavy naphthol concentrations in solution, and Cellosolve as a solvent is suitable for this temperature. It is noted, however, that peculiarities of the various naphthols favor certain solvents and the charts should be checked for this before the mix is made up.

One factor worth mentioning, as related to the pad mix, is the use of sequestering agents. Hard water is especially detrimental to naphthol dyeing since calcium and magnesium combine with naphthols to form insoluble calcium or magnesium naphtholates which precipitate on the fiber. Iron in the water is also detrimental to crock fastness. An organic sequestering agent is essential not only in the pad liquor but with all liquors coming in contact with the naphtholated material.

Drying

Migration and a condition described as "wicking" are very troublesome when dyeing naphthols with continuous

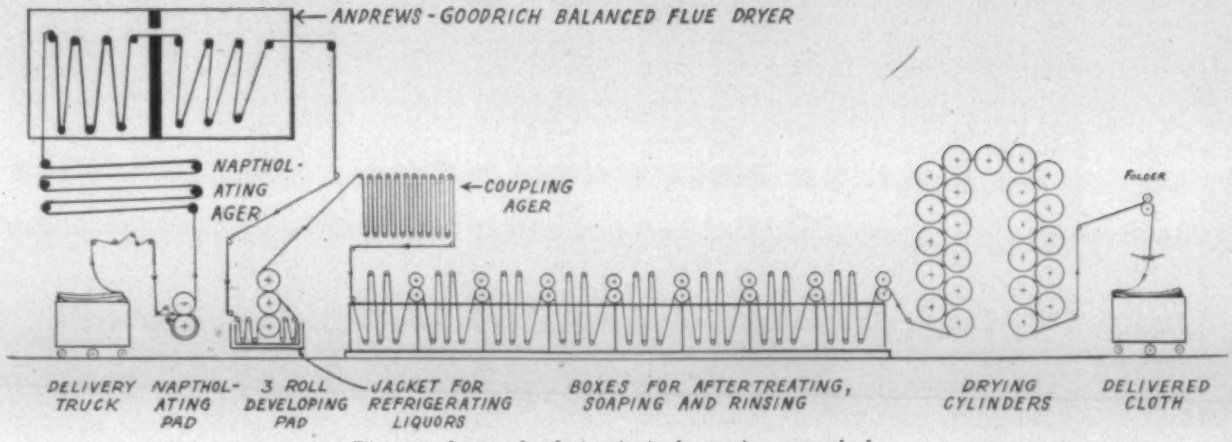


Diagram of range for dyeing Azoics by continuous method.

equipment. To overcome these troublesome drying conditions, proper drying equipment is essential. Dry cans and non-controlled hot flues are not efficient enough for this operation. A balanced dryer that is equipped with temperature controls is needed to regulate conditions as may be required. An efficiently regulated hot flue dryer is the Andrews and Goodrich vapor dryer. These ranges vary in size to suit various types of materials. For heavyweight fabrics a large unit is needed to efficiently dry the fabric and to allow for high-speed runs.

"Wicking" is noted when the center or core of a naphthol dyed fiber is white or devoid of pigment. This condition is invariably caused by flue temperatures that are too high for the initial drying phase. It is recalled that a fiber dries from the inside to the outside. The solvents used in naphthol mixes vaporize rapidly at elevated temperatures. This rapid drying causes, what can best be described as a capillary migration or "wicking" action. The remedy, of course, is to start the initial drying process at a relatively low temperature, i.e., not over 175° F.

Other migration processes that are exhibited are peppery and one-sided appearances. These effects are traced to uneven and too high initial drying temperatures. Tests have shown that a vast majority (75 to 90 per cent) of all migration occurs in the first half of the drying operation. If we are to avoid migration, therefore, it is necessary to start drying operations at low temperatures. This is especially relative when working with solvents that have a tendency to vaporize rapidly.

Naphthols have varying peculiarities with regard to drying. The non-substantive naphthols are more troublesome, as related to migration, than the substantive naphthols. Drying problems are further aggravated when it is necessary to dye fabrics of open and uneven weave with non-substantive naphthols.

Open and unevenly-woven goods can be dried without too much difficulty if they are first mercerized (if cotton) before dyeing, or causticized if the goods are viscose. Mercerizing corrects weaving faults and tends to hold the color in the goods.

Further, various chemicals such as anhydrous sodium suffate or carboxy methyl cellulose can be added to the pad liquor to help in minimizing migration problems.

Developing

Following the drying operation the goods enter the developing or coupling bath. Inasmuch as the fast color salts, or bases, are not very stable, a good deal of attention must be given to this phase of the dyeing. The most satisfactory equipment for coupling is the three-roll pad utilizing a small liquor volume with an overflow to wash away precipitates that form on the surface of the bath.

A refrigeration unit should be installed to stabilize the developing bath. When ice is used, a surplus amount of developer and a circulating apparatus should be added to the coupling unit to allow for dilution. Inferior penetrated dyeings, as evidenced from machine patches, are usually traced to excessively diluted developing baths.

Equally as important as the temperature of this bath is the proper control of pH. A natural pH is more favorable for the coupling action of the bases. The diazo compounds must be protected from alkali-naphtholated goods because they are sensitive to caustic alkali. A pH of 4 is quite suitable for the coupling bath. Acid-sensitive fast color salts should be buffered using one ounce per gallon of sodium acetate as a protective agent. Coupling energy and shade strength are reduced by adding too much acetic acid.

It is important that salts with strong coupling speed be selected for continuous runs because of the time element involved. Suitable fast color salts are Red RL, Red GG, Red GL, Scarlet GGN, Orange GCS, Yellow GC, Orange GR, Scarlet G, Scarlet RN, Red GL and Red AL.

After the cloth leaves the developing pad, a sufficient amount of time must be allowed for complete coupling of the developers. A sufficient amount of time must be allowed for complete coupling of the developers. A sufficient number of skying rolls is needed to accomplish this result. The number of rolls to be utilized should be figured to allow sufficient time for the slower fast color salts to fully develop and yet have the machine run at a profitable speed. An allotted two-minute time span at this stage is invariably adequate.

After-Treatment

After the goods leave the sky rolls they enter the wash boxes. The best medium to be used in the first box has long been a debatable issue. A boiling temperature tends to aid in completing the coupling of the developers and in producing brighter shades. This temperature, at this stage, also tends to precipitate decomposed developers which form tarry substances which are very difficult to remove from the goods. A more favored temperature for this first box is around 100° F., with the bath containing an organic sequestering agent. Soda ash is also added to this first box

if the fast color salt is of a nature to so require an alkali to stop any further developing action. The remaining boxes contain a boiling (170° F. bath with viscose) solution of suitable detergent, soda ash and sequestering agent.

The goods are then dried with the drying cylinders. Most shades will then have to be rope-soaped to obtain the true shade and desired crock fastness. It is unnecessary to dry the goods on the drying cylinders if the goods are directly rope-soaped without delay. If the goods remain in the wet stage for too long a period of time, there is danger of seepage stains being caused by loose pigment that may be difficult to remove.

Concentration Control—Key To Bleaching Uniformity

Concentration control of acid and caustic saturators on the continuous bleaching range is a new method not previously described in the trade press. Here is how one mill does it.

LONG known for quality finishing, a leading cotton textile bleaching plant has applied automatic controls to its continuous bleaching range for further improvement of fabric finishing operations. In revamping their continuous bleaching process, they added continuous desizing and acid souring equipment, together with the newest instrumentation for the entire bleach range.

Working closely with instrument engineers of The Foxboro Co., of Foxboro, Mass., the mill installed cabinet-type panels to centralize control of bleaching instrumentation and to "automatize" those processes which have the greatest effect on finished quality.

Two of the systems designed are particularly interesting in that they involve the measurement and control of concentration, both in the weak acid saturator and in the following caustic saturator so that concentrations of acid and caustic can be precisely maintained at the desired percentage without manual adjustment or attention.

Before installing automatic control, solution strength in each saturator had to be watched constantly by the bleachers. With changes in speed and weight of goods from the desizing washer, the acid saturator strength was continually changing and, since the carryover was irregular, there was no way to predict the amount of dilution and neutralization so that the hand value could be set in one position.

The same problem existed with the caustic saturator. Caustic soda was diluted by carryover from the acid washer and changes in cloth weight and speed made dilution irregular. Bleachers found it imperative to take a sample and run a titration every 15 minutes to check and readjust solution strength. Even so, it was impossible to keep a uniform strength. The natural tendency was to overchange with caustic since a weaker-than-normal solution would have a much more detrimental effect and produce uneven bleaching.

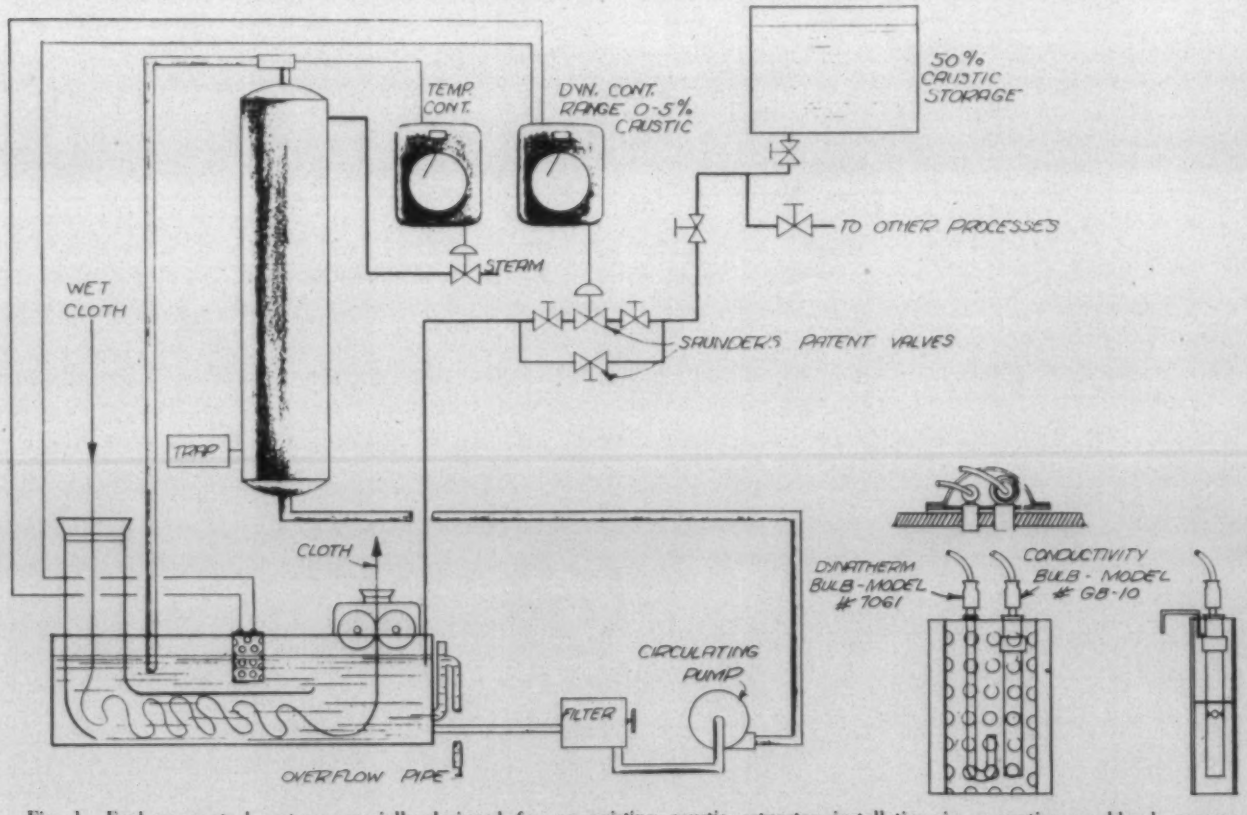


Fig. 1—Foxboro control system especially designed for an existing caustic saturator installation in a continuous bleach range.

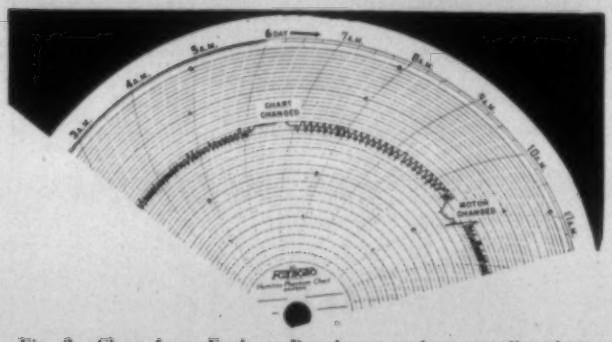


Fig. 2—Chart from Foxboro Dynalog recorder controller showing continuous record of caustic concentration percentage.

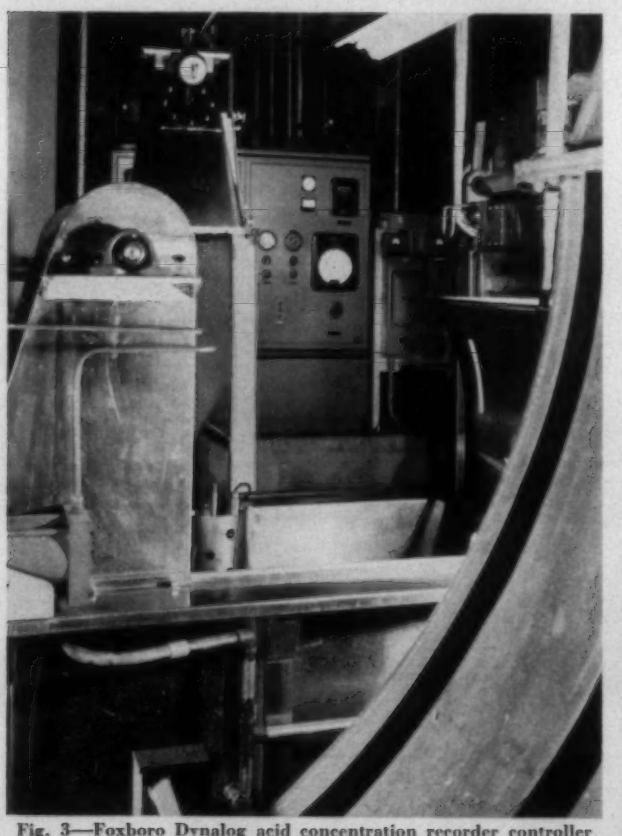


Fig. 3—Foxboro Dynalog acid concentration recorder controller (cabinet mounted) with measuring assembly, in foreground, for acid saturator in continuous bleach range.

However, with automatic control, bath strength is no longer an uncertainty. The saturator (Fig. 1) is controlled by two instruments: a Dynalog (electronic) conductivity controller and a temperature controller. The conductivity controller, with a range of 0-5 per cent sodium hydroxide, receives two measurements from the bath. One is conductivity, an inferential measurement of concentration, obtained by means of a tubular conductivity cell. The other is temperature, sensed by a Dynatherm temperature bulb. Since conductivity will vary with changes in solution temperature, the instrument automatically corrects its concentration reading to compensate for any temperature variation. This arrangement makes it possible to obtain correct concentration measurement and control despite changes of solution temperature for different cloth weights.

Acting on this continuous measurement, the instrument adjusts a control valve in the caustic line, admitting exactly the right amount of caustic to maintain solution strength at three per-cent sodium hydroxide. Should a shutdown occur, a solenoid pilot valve operates automatically to shut off the air supply to the control valve, closing it immediately so that bath strength cannot build up from stoppage of mixing action.

The temperature controller simply governs the flow of steam to a heat exchanger through which the saturator liquid is circulated. This keeps the solution at whatever temperature is desired for the weight of cloth being run (usually

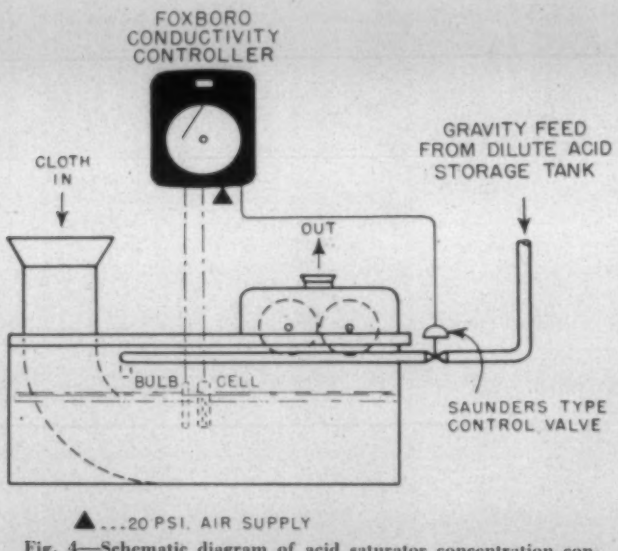


Fig. 4—Schematic diagram of acid saturator concentration control installation.

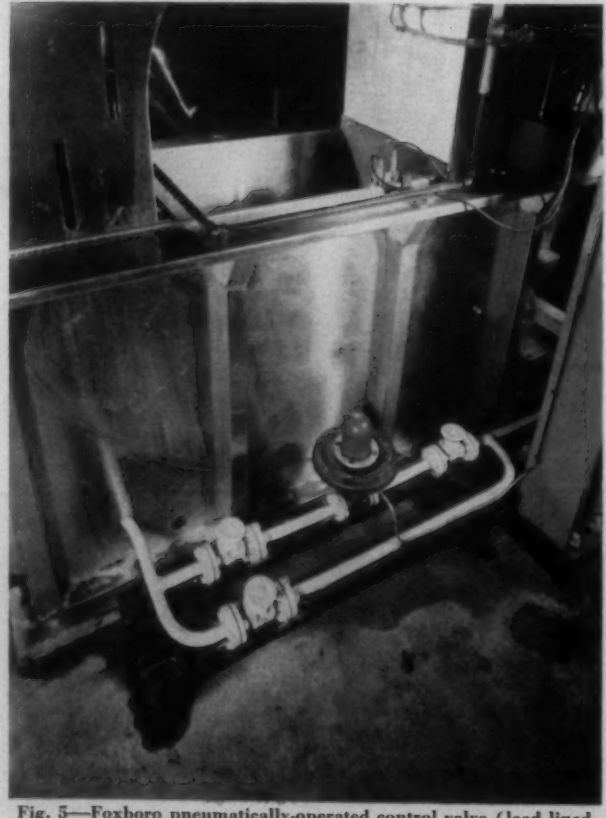


Fig. 5—Foxboro pneumatically-operated control valve (lead lined Saunders Patent) and conductivity cell for controlling weak acid addition to acid souring bath.

140° F.). A filter in the line ahead of the circulating pump traps lint and other foreign matter to prevent solution contamination and fouling. The recirculating pump is only required for filtering and is not necessary for mixing or heating (which can be done by installing steam coils in the saturator).

Neither the instruments nor the accessory equipment require any more than occasional attention. The conductivity cell and its accompanying temperature bulb are kept immersed in the solution by a perforated metal guard (Fig. 3) welded to the inside of the saturator above the cloth chute. Such placement avoids damage from contact with the moving cloth and provides measurement at a representative location in the saturator, not too near the caustic line and in an area where circulation is assured. Aside from a daily rinsing in a bucket of clear water, the cell needs no special care, because the sensitive conductivity electrodes are embedded in the Pyrex structure in such a way that plugging is prevented.

The iron-bodied Saunders Patent valve (Figs. 1 and 5) was selected for caustic saturator service because of its unique design, being capable of clearing deposits of crystallized caustic in the valve body. It is located in a gravity feed line from 50 per cent caustic storage and has required no maintenance.

In contrast to the 15-minute schedule of titrations, the saturator is now seldom tested. So accurate is control, that not once in a year's operating time has there been any variance between the titration and the instrument chart reading.

Although bleaching uniformity has been the most dramatic improvement, the so-called by-product results cannot be discounted. Bleaching room operators are spared the time-consuming, constant chore of manipulating a variable-speed pump rheostat in attempting to correct caustic strength. Also, the new system is more economical. The many dollars saved each day in caustic contamination more than offsets the cost of the instrumentation. But the assurance of constantly uniform saturator solution strength far outweighs all other results, with each run saturated in solutions of identical strength (Fig. 2).

Much the same results have been noted in weak acid saturation (Fig. 4). On this saturator no temperature controller is used because the acid is not heated. As shown in (Fig. 3), the cell installation is identical. The Dynalog conductivity controller, with a range of 0-2.5 per cent sulfuric acid, maintains control at 1.75 per cent. Dilute acid supply (gravity feed) is valved through lead lines. The iron-bodied Saunders Patent control valve is lead lined for corrosion resistance.

Despite variations in caustic carryover caused by changing cloth weights or running speeds, the instrument automatically holds the bath to its correct strength, preventing acid build-up and spoilage during shutdown, and eliminating waste of acid. No forced circulation is necessary because of the natural mixing action in the bath. Neutralization is complete without damage to the material.

Intelligent application of controls, such as those used in bleaching, is typical of this mill's modern operating methods, resulting in upgraded processing throughout . . . in dyeing, in mercerizing . . . wherever instrumentation can help build and maintain the quality for which this finishing plant is noted.

Maintenance, Engineering & Handling

Electronic Control Of Humidity, Temperature & Moisture Content

By L. F. LAWRENCE, Branch Manager, Minneapolis-Honeywell Regulator Co., Charlotte, N. C.

Does the word "automation" get your brain out of gear? In this paper, presented before the recent A.I.E.E. conference on electrical equipment for the textile industry, Mr. Hammond tells what instrument engineers have already done and what they hope to do in process control.

THE textile industry today is faced with a tremendous challenge in maintaining its productive capacity, which has literally mushroomed since the war. We are all aware of the labor gains made during these years, plus the fact that the importance of the worker is increasing in our mills. Further, much more capital is being invested in the machinery he operates. The machines are running faster, they are built to more precision and are more fully automatic than in the past. As a consequence, they are more sensitive to atmospheric changes.

We are also aware of the strides made in textile materials due to the impact of synthetics. These new fibers, in general, must be processed within closer humidity limits.

The automatic control industry has therefore seen presented a challenge to design and develop controls and control systems which will be capable of sensing and correcting for changes which make for inefficiency. For example, higher temperatures, which result from increased lighting, faster and larger machinery, and lower humidity, reduce a man's willingness to work, his capacity to work and his mental alertness, making him more vulnerable to accident

and more prone to absenteeism. Changes in temperature create expansion and contraction of metal parts, destroying precise adjustments, and causing more loom stops, more faults in the cloth and more broken ends. Since textile fibers are hygrascopic, they are affected by moisture changes as well as temperature. Consequently, management has a direct concern with men, machinery and materials in establishing the necessary levels and tolerances of atmospheric conditions in the mills.

In some cases, the control industry was not in position to fulfill the need created by increased machinery speeds, finer tolerances and new fibers. The older designed controls depended on a change in the measured conditions creating a change in a mechanical leverage system. This in turn was used to regulate an electrical output or a pneumatic output to controlled devices, such as steam valves, dampers, atomizers, etc., which adjusted the temperature and/or humidity level. This mechanical-response-measurement naturally introduced a measuring lag. It had too much hystersis and could not adjust to small changes in the medium under control. For these reasons, smaller tolerances in the atmospheric conditions were hard to maintain. For an answer to this need we have turned to electronic controls.

Relative Humidity

Since relative humidity is so important in the majority of mills, let us consider it first. It may surprise you, by the way, to know that air conditioning was born in textile mills, born of the need for more moisture in the air. Early efforts to raise the humidity included wetted floors, vapor pots, hand fans, etc. Later, atomizers and window fans were developed, and still later, of course, the central station conditioning. A variety of hygroscopic measuring elements have been used to control humidity—tobacco leaves, cotton, wool, skin, paper, wet bulb and hair. They all work to a degree, but require maintenance because of fatigue, exceed their elastic limit or are sluggish to the point of being nonsensitive within the limits now being asked for. The electronic hygrostat, which has been on the market about four years now, is capable of operating to hold plus or minus one-half per cent relative humidity. Its usual application is control of atomizer sprays in individual zones or areas of the air conditioning space.

This electronic hygrostat system uses a bridge circuit and is made up of two main units, the measuring element and an electronic relay. In each unit are two legs of the bridge circuit. The measuring element, or hygrostat, contains a fixed resistance plus a rheostat (which is used for control point adjustment) as one leg and a sensing element as the second leg. This element is the heart of the system. On a thin, moisture-resistant plastic sheet, about 1¼ inches square, are embossed two fine gold electrodes in a grid-like pattern. Coated over these electrodes is a thin layer of hygroscopic salts (similar to lithium chloride) which makes the element sensitive to changes in relative humidity. As the element takes moisture from the air, on an increase in relative humidity, the resistance in the element decreases. As the moisture level decreases, the element quickly gives up moisture and the resistance increases. As the resistance changes, small changes in voltage are produced across the bridge leg in the measuring element. These voltage changes are sensed by the electronic relay which contains the other two legs of the bridge circuit, both fixed at 1,000 ohms each, and the vacuum tube circuit. This circuit amplifies the voltage changes to sufficient strength to energize a relay which closes a circuit to the humidifying, or in some cases, the dehumidifying equipment.

In operation, when the space relative humidity is equal to the set point of the hygrostat, the relay is de-energized and the system is in balance. The resistance of the element is equal to the sum of the fixed resistance, 47,000 ohms, and the resistance of the control point adjustment. Since the other two legs of the circuit located in the relay are fixed at 1,000 ohms each, one-half of the applied voltage is dropped across each half of the bridge. The midpoints of each side are at equal potentials and no signal is sent to the relay from the electronic amplifier. When the space relative humidity changes, the resistance of the element changes. Either more or less voltage is dropped across the element and the midpoint of the hygrostat side of the bridge circuit is at some potential other than half the applied voltage. Since the midpoint of the other side of the circuit (in the relay) remains constant because of the fixed resistance, there is now a potential difference between the midpoints of each side of the circuit. When this difference exists, a signal is sent to the relay where it is amplified and then fed into the discriminator stage of the vacuum tube circuit. The discriminator stage senses whether more or less voltage is being dropped across the element. On a humidification application, such as atomizers in a weave room, the relay opens the circuit to the atomizer valve when the humidity is low and the voltage drop increases across the element.

This is the most sensitive controller on the market, and it has been applied on some 1,000 installations. Its small mass provides great sensitivity, it has no moving parts, and it is not affected by fatigue or other shortcomings of other type hygrostats. Some of the first ones installed in 1950 are in operation today and have never required either maintenance or recalibration.

The limitations of the application of this control are:

(1) Ambient temperature range:
+40 to +130° F.
(2) Humidity range:
31 to 93% R.H.
(3) Calibrated sensitivity:
±½%

Temperature Control

Next to humidity, temperature control is almost as important. The function of temperature control of an air conditioning system for a textile mill has two schools of thought, although both agree on one thing. That is, that the quality of control must be sensitive, accurate and stable. In the past, we have used the control already developed, even though we were the first to recognize that pressure-filled thermal systems could not give the degree of control the mill expected to get. If you consider that when a mill installs 1,000 tons of refrigeration air conditioning it is investing over half a million dollars, it becomes ridiculous to expect any degree of control from a $40 thermostat specified to operate this equipment. Yet this was common practice eight or nine years ago, and even up until three or

four years ago. The factors I mentioned earlier relating to machinery and materials, however, have made the owner, consulting engineer and contractor seek better controls and we have been fortunate in being able to sit down with all three and develop a quality control system as the design requirements are drawn up.

Here we turn again to electronics for responsible control, and we have the advantages of a measuring element with no moving parts, small mass and great sensitivity. For dew point control, we usually select a Brown ElectroniK recording potentiometer with fully adjustable proportional band and automatic reset control because this quality of control is necessary for the application and is not available in commercial controls.

As most of you know, a potentiometer is an electrical instrument, which, in this case measures temperature by balancing an e.m.f. developed by a thermocouple or a voltage drop, across a resistance bulb against a known voltage supplied from a battery. The known voltage is varied by movement of a contactor along a slidewire across which the battery voltage is impressed. The position of balance is reached when the two opposing voltages are equal and no current flows in the balancing circuit. Since the e.m.f. of the measuring element has a definite value for each temperature, the position of the contactor along the slide wire can be calibrated to read directly in temperature.

The ElectroniK potentiometer provides three basic functions: conversion, amplification, rebalance of the circuit. The conversion of the d.c. signal change to an a.c. voltage of proportional magnitude is accomplished by a converter and special input transformer. This a.c. is timed with the a.c. supply voltage in such a way as to identify whether the signal e.m.f. is above or below the balance point and to give proper direction to the balancing motor. The converter feeds into the input transformer primary, and being timed by 60-cycle current, induces an alternating secondary voltage which is fed into three stages of voltage amplification and then into two twin-triodes for low power amplification, feeding then into the winding or the balancing motor. The motor has its other winding fed from the 60-cycle power supply. So, for increasing e.m.f. signal strength at the temperature sensitive element, the signal is converted, in phase with the 60-cycle supply through the transformer and amplification stages into the phase winding of the motor. Being an "in phase" signal, the balancing motor moves in the direction to balance the bridge. If the signal is decreasing, the current flow in the input transformer primary is reversed, and the secondary voltage is 180° out of timing, or phase, with the supply frequency. This signal passes through the amplification stages and appears in the balancing motor phase winding where it is still 180 degrees out of phase with the supply frequency, making the motor rotate in an opposite direction, thus rebalancing the bridge.

This type of circuit therefore gives us continuous balance of the measuring circuit, and there is no movement in the entire instrument until a temperature change occurs at the measuring element.

The quality of control I mentioned above as being necessary can be shown by application to a central station air washer system. Here, outside air and recirculated air, in variable quantities, is introduced as a mixture into the washer section where it is heated or cooled and saturated by the washer sprays to a pre-selected dew point temperature. It passes through eliminator plates where excess moisture entrained in the air is removed. From here the air is pulled into the fan and pushed into the distributing duct system to the space.

It is necessary to maintain a constant condition of air which leaves the washer, known as the dew point temperature. This is when the wet and dry bulb are equal, the relative humidity being 100 per cent. This dew point air is introduced to the space where the internal load, due to lights and machinery, etc., elevates the dry bulb to the desired level and causes the wet bulb and humidity to go down to approximately the desired level.

Since the system is designed for maximum load con-

A LOT OF ROOF AREA (with special insulation) is shown in this first air view of the world's largest bleachery. The Springs Cotton Mills recently completed an addition *(upper right)* to add to its bleachery facilities at Grace, S. C. In order to eliminate condensation and conserve heat in the Winter, the entire roof area is insulated with Foamglas cellular glass insulation, a product of the Pittsburgh Corning Corp. Since the insulation is composed of sealed glass cells, there is no problem of moisture penetration, which would cause loss of insulating efficiency.

dition, we must have a flexible control system to meet conditions where the load is reduced. So zone controls are added to take care of zone area load changes, such as looms being down, spinning frames stopped, etc. These controls maintain the final space condition and reflect the effect of changes if they occur in the washer, if it is not held constant, plus the zone changes. Since a change in dew point temperature of only $\pm\frac{1}{2}°$ F. can change the relative humidity about two per cent in the space, if we do not hold the dew point constant, the zone controls are practically worthless. They must correct for this change plus the zone changes and if the design required plus or minus one per cent and plus or minus two degrees F. in the space conditions, or less, this condition cannot be met. If we put a quality control, such as the ElectroniK potentiometer, in control of the dew point, we can hold it constant, so the zone controls have only to correct for changes in the space conditions.

The function of automatic reset in the control action is one which will allow a constant temperature to be maintained under a no-load condition in the washer or a full-load condition in the washer. It may be compared to an automobile being driven at 30 miles per hour on a level road. On a decrease in load, such as downgrade, the accelerator pedal is released by the foot in order to hold 30 miles per hour. Or, if the load is increased, such as going upgrade, the accelerator pedal must be pushed down to hold 30 miles per hour. So to hold 30 miles per hour the accelerator may be in any position from no pressure to fully depressed, depending on the load, and the corrective reset action is made by the foot to increase or decrease the output capacity of the engine. Similarly, the automatic reset function will vary the washer capacity from 0 to 100 per cent if necessary to hold a constant leaving air condition. With the sensitive and accurate measuring element and circuit, plus this type of control, we can hold space conditions well within the accepted tolerances specified today.

Moist-O-Graph

There are other functions of a mill which require the use of the ElectroniK potentiometer because of its quality measuring circuit—such applications as pH, conductivity, control of bleaching ranges, etc. We have also found it ideally suited for moisture regain measurement and control. We have incorporated this instrument into a moisture control system, known as the Moist-O-Graph. It functions to detect the moisture content, or regain, of a sized warp, and by control action to establish a quality warp by eliminating mildew, reducing chafing, shedding and breaking to a minimum, producing a stronger yarn.

The first Moist-O-Graph was made in 1935. It employed a mechanical balance potentiometer which was a good instrument for many applications. However, it had inherent shortcomings, such as a sensitive galvanometer continuous cyclic rebalance action, and it had to be mounted level. These drawbacks are eliminated by the ElectroniK potentiometer we've been using for the past five years.

For those of you who are not familiar with this Moist-O-Graph system, there are three primary components which make up the measuring circuit: (1) a detector roll which mounts on the idler roll of the slasher so that the yarn passes between these rolls. The detector roll is wired to . . . (2) a transmitter in such a way that the yarn passing between the rolls acts as one arm of a bridge circuit. This transmitter has a high impedance d.c. to a.c. electron tube converter, which converts the d.c. voltage created by the unbalanced bridge to a.c., and amplifies it to drive a balancing slidewire contact arm by means of a small reversible motor. The balancing slidewire forms another arm of the bridge circuit. The contact of a primary slidewire of an a.c. follower system is simultaneously driven by the motor, so that the unbalance produces an electrical output which is used as the input to . . . (3) the Moist-O-Graph control instrument. This is a recording instrument, similar to that used for dew point control, although its measuring circuit is somewhat different. Here, the transmitter signal is received by way of a follower circuit, and properly calibrated, records the regain of the yarn passing under the detector roll. The slidewire contactor in this instrument is positioned to correspond to the transmitter slidewire contactor, the contactors of both slidewires terminating directly into the primary winding of the amplifier input transformer. Therefore, a movement of the contact of the transmitter slidewire results in an unbalance signal which is impressed into the amplifier and operates the balancing motor so that it repositions the instrument slidewire in such a direction as to restore balance to the circuit. The movable contact on one slidewire thus "follows" the movable contact on the other. This bridge circuit is continuously balanced with no movement unless the regain changes. We have, by the way, very high resistance valves in this particular circuit. For example, in measuring the regain of cotton, we encounter resistances in the order of three-to-five megohms, and of rayon values from 50 to 1,100 megs. The ElectroniK potentiometer is well adapted to amplify a small signal to sufficient strength for us to build a rugged, stable instrument without sacrificing the sensitivity required in a bridge measuring the high resistance encountered in this application.

Control from this instrument may be had in any form of electric contacts, or floating or proportional control, and any form of pneumatic control. The choice would depend on the application. For speed control of a slasher, we usually control a reversible motor geared to a rheostat. The rheostat is positioned as the regain changes, and is used to change the slasher speed. Therefore, it may be simply stated that the function of the Moist-O-Graph control system is to provide a corrective action to the speed of the yarn passing through the slasher, allowing full drying capacity of the cylinders to be utilized, and producing yarn of the desired regain at the maximum through-put.

Speed Control

Speed control may be used on any type of slasher on the market today, either cylinder or warm air. With this form of control, the temperature of the cylinders, or the air inside the warm air type, is held constant by standard remote bulb temperature controls operating steam valves. Where certain types of warm air slashers are used, those employing a preheat coil and two reheat coils, or where two or three-cylinder slashers are suitable, we can utilize a somewhat different control action, known as cascade control. This holds the speed constant and varies the drying capacity.

The cascade control responds to regain changes through the Moist-O-Graph measuring circuit and translates this into controlled air pressure. In this case the Moist-O-Graph is provided as a pneumatic controller. The controlled air is connected into a remote bulb temperature controller in such a way as to change its control point setting in response to measured regain changes by the Moist-O-Graph. The temperature controller thus controls at a new temperature, operating the steam valves in a new position. We have some accounts who prefer constant speed control. For example, at Startex Mills, we put in a cascade system in 1949. They report some steam savings, and point out they are able to plan closer to factual co-ordination with carding, spinning, slashing and weaving because of a fixed speed. Because of the sensitivity and continuous balance measuring circuit, and the quality of control, they are holding the regain at the slasher within plus or minus one-eighth per cent. We feel this is an exceptionally good control result, as normally we can control within plus or minus one-quarter per cent. It should be borne in mind, however, for any control to operate within its capability, the system must be controllable. In other words, the variables related to each other must be capable of being controlled.

Humidity, temperature, and moisture regain are three important variables in the textile industry which lend themselves to reasonably accurate control. If and when automation moves into the textile mills, we hope and expect to have the necessary industrial controls to perform satisfactorily. The trend is already apparent and it's to electronic controls we keep looking for a better job.

Clark, Pennington, Estes, Chapman, Stafford, James, Foard, Spivey
Stutts, Carpenter, McAden, Marley (partially hidden,), Purcell
Delany, Hughes, Pittendreigh, Carter, Roberts, McCrary, Powell, Vincent, Meikle

MAKING PLANS FOR 1955 SOUTHERN TEXTILE ASSOCIATION CONVENTION—This picture was taken Jan. 15 at a meeting of the board of governors of the Southern Textile Association, with most of the agenda being devoted to plans for the S.T.A. convention at Mayview Manor, Blowing Rock, N. C., this coming June 16-17-18. Room reservation blanks will be sent out to all S.T.A. members approximately two months prior to the convention.

Seated are David Clark, publisher of TEXTILE BULLETIN; Horace Pennington of Cone Mills Corp., Greensboro, N. C.; H. C. Estes of Pacific Mills, Rhodhiss, N. C., second vice-president; James A. Chapman Jr. of Inman (S. C.) Mills, first vice-president; T. I. Stafford of Clifton (S. C.) Mfg. Co., chairman of the board of governors and immediate past president; J. L. James of Erwin Mills Inc., Cooleemee, N. C., the current S.T.A. president; John H. Foard of Ragan Ring Co., Newton, N. C., chairman of the S.T.A. Associate Members Division; and J. E. Spivey of The Textile Shops, Spartanburg, S. C., chairman of the associate members council.

Kneeling, R. T. Stutts of Carolinian Mills Inc., High Shoals, N. C., past president; M. A. Carpenter of Erwin Mills, Cooleemee, chairman of the Northern North Carolina-Virginia Division; James McAden Jr. of TEXTILE BULLETIN, secretary-treasurer of the S.T.A.; A. R. Marley of Erwin Mills, Erwin, N. C., past president; and D. A. Purcell of Fieldcrest Mills, Draper, N. C., past president.

Standing, J. L. Delany of Joanna (S. C.) Cotton Mills, past president; J. P. Hughes of Cone Mills Corp., Hillsboro, N. C.; W. M. Pittendreigh of Riegel Textile Corp., Ware Shoals, S. C., chairman of the South Carolina Division; J. P. Carter of Spartan Mills, Startex, S. C.; D. H. Roberts of Lydia Cotton Mills, Clinton, S. C.; R. M. McCrary of Carolinian Mills, chairman of the Piedmont Division; J. B. Powell of Locke Cotton Mills Co., Concord, N. C.; Walter Vincent of Dan River Mills Inc., Danville, Va.; and J. R. Meikle of Rosemary Mfg. Co., Roanoke Rapids, N. C.

Promotions, Resignations, Honors, Transfers, Appointments, Elections, Civic and Associational Activities

PERSONAL NEWS

J. R. Scoggins

James R. Scoggins of Charlotte, N. C., has joined the sales staff of Barnhardt Bros. Co. and is now calling on weaving and knitting mills in North Carolina, South Carolina and Virginia. Mr. Scoggins graduated from the North Carolina State College School of Textiles, where he received a B.S. degree in textile manufacturing in 1941. Mr. Scoggins has had considerable experience in the textile field, his most recent work being with the Piedmont Heights Division of Burlington Mills Corp. at Burlington, N. C.

Chauncey W. Lever, director of industrial and public relations at Erwin Mills Inc., Durham, N. C., has been named public relations chairman for the year round program of the Durham United Fund.

Walter B. Hildebrandt has been appointed director of mill sales for Ely & Walker Dry Goods Co., St. Louis, Mo., succeeding Frederick A. McDevitt, who has resigned. Mr. Hildebrandt formerly was with the manufacturing group of the Ely & Walker group of textile mills, and made his headquarters in Greenville, S. C. He joined the mill organization in 1950 when he became manager of Hart Cotton Mills Inc., Tarboro, N. C. He was shifted to Greenville in 1951. Prior to joining Hart, Mr. Hildebrandt was vice-president and general manager of the old Pomona Mfg. Co., Greensboro, N. C.

John B. Dickson

John B. Dickson, formerly technical analyst with the textile division of U. S. Rubber Co., has joined the staff of the Southern Regional Research Laboratory at New Orleans, La., as a part-time consultant in the laboratory's cotton research program. Dr. Dickson, an expert with many years of industrial experience in fiber and fabric technology, will participate in the laboratory's broad program to develop new principles in this field. He will be closely associated with research to determine the effect that cotton fiber properties have on yarn and fabric properties and to develop equations for translating fiber properties into yarn and fabric properties. He will work under the direction of R. J. Cheatham, head of the cotton mechanical processing section of the Southern Laboratory, a unit of the U.S.D.A. Southern Utilization Research Branch. Dr. Dickson received his doctorate in chemistry and physics from the Massachusetts Institute of Technology in 1917. His career includes 18 years as technical director for A. G. Spaulding & Bros.; and 12 years with U. S. Rubber Co. He served as consultant to the office of the Quartermaster General from 1943 to 1950 on athletic equipment.

Henry H. Eagar Jr. has been named manager of quality and development for Standard-Coosa-Thatcher Co., Chattanooga, Tenn., succeeding A. A. Hobbs, who has resigned. Mr. Eagar has been with the company since 1926. At the time of his promotion he was superintendent of the company's National Plant at Rossville, Ga. Succeeding him in that position is Harvey E. Delay, Mr. Eagar's assistant at National. Mr. Delay has also been with the company since 1926. He was made assistant superintendent of the National Plant in 1948.

Julian T. Chase, resident manager for National Aniline Division, Allied Chemical & Dye Corp., at Charlotte, N. C., has retired after 50 years of continuous service in the dyestuff industry. Mr. Chase was honored by a testimonial dinner given by his associates and was presented with a silver tea service as a memento of his long tenure. In tendering this token from his fellow workers at National Aniline Division, H. J. Daigneault, vice-president of sales, noted that Mr. Chase had entered the dyestuffs industry at Atlanta in 1905 as a technician for the Cassella Color Co. (a predecessor of National Aniline) and had since been continuously engaged in dyestuffs sales and technical service. Mr. Chase was appointed resident manager at Charlotte for National Aniline Feb. 1, 1934, and continued actively in that position until he retired. He will reside near Charlotte and will

Marsh, Toms, Preddy, Ix, Thomas, Taylor, Fewell, Harlow, Michael and Rogers

SILVER ANNIVERSARY—Frank J. Ix Jr., general manager of Frank Ix & Sons Virginia Corp., Charlottesville, is shown congratulating Mrs. Hattie Thomas at recent ceremonies honoring eight employees of the company who have completed 25 years of continuous service. A $50 Savings Bond was presented to each. Shown above are Thomas Marsh, James Toms, Earl Preddy, Mr. Ix, Mrs. Thomas, Geraldine Taylor, J. A. Fewell (plant superintendent), William Harlow, Martin Michael and John Rogers.

be available to National Aniline for consultation. . . . John K. Boykin has been named resident manager at Charlotte, succeeding Mr. Chase. Mr. Boykin joined National Aniline as a dyestuffs technician at the Charlotte technical service laboratory in April 1946 and was appointed resident manager at Atlanta, Ga., in September 1953. . . . Mr. Boykin will be succeeded as resident manager at Atlanta by T. M. Ferguson, who has been in charge of the National Aniline technical service laboratory there. Prior to joining National Aniline in 1953, Mr. Ferguson was for many years superintendent of dyeing for Riegel Textile Corp. and previously associated with American Finishing Co. and Clearwater Mfg. Co.

Walter Greer

Walter M. Greer has joined Texize Chemicals Inc., Greenville, S. C., as a textile sizing sales representative in the company's industrial division. Mr. Greer has been associated for the past three years with the Victor Monaghan Division of J. P. Stevens in the Victor and Duncan Mills. Prior to his association with the Stevens chain, Mr. Greer was with the industrial division of Texize for four years. He is a graduate of Citadel Military College and also Clemson College, where he received a degree in textile engineering. With Texize, he will cover mills in Alabama, South Carolina and Georgia, with Greenville as his headquarters.

The appointment of Edward H. Grosse as research group leader of the textile section of its technical service department has been announced by the A. E. Staley Mfg. Co., corn and soybean processor, Decatur, Ill. Mr. Grosse, a 1946 graduate of North Carolina State College with a bachelor's degree in textile chemistry, was formerly employed by Dan River Mills at Danville, Va. . . . The promotion of Dr. Ralph E. C. Fredrickson to the position of director of the development engineering department has been announced by L. O. Gill, technical director of Staley. He succeeds Dr. Walter G. Meyer, resigned.

Guthrie, Kosolapoff, Reid

EXAMINING AN EXPERIMENTAL SAMPLE of flame-resistant cotton fabric produced at the Southern Regional Research Laboratory at New Orleans, La., are Dr. Gennady M. Kosolapoff, Dr. J. D. Guthrie and Dr. J. D. Reid. Dr. Kosolapoff, who was recently appointed a collaborator of the Southern laboratory, met with laboratory scientists to review and evaluate the research program of the laboratory in this field. Drs. Guthrie and Reid are members of the staff engaged in the development of flame-resistant cotton fabrics.

John J. Valter

John J. Valter has been named technical sales representative for Crown Chemical Corp., Providence, R. I. Mr. Valter will cover South Carolina and portions of North Carolina, Georgia, Alabama and Tennessee for Crown and will make his headquarters in Greenville, S. C. In the past, Mr. Valter has been associated with Fontaine Converting Works, North Carolina Finishing Co., Pacific Mills and Riegel Textile Corp. Most recently he has served as technical sales representative for Metro-Atlantic Inc. with headquarters in Greenville.

James C. Self, president of Greenwood (S. C.) Mills, recently underwent surgery at Duke Hospital, Durham, N. C.

J. L. Channell, manager of Micolas Cotton Mills, Opp., Ala., has been named a vice-president of the company.

James A. Chapman, president and treasurer of Inman (S. C.) Mills; Walter S. Montgomery, president and treasurer of Spartan Mills, Spartanburg, S. C.; W. B. D. Stroud, treasurer of Excelsior Mills, Union, S. C.; and John M. Little, cotton merchant, Union, S. C., have been elected directors of Commercial National Bank, Spartanburg, Union, Landrum and Jonesville, S. C.

Norman Bush

The Benjamin Booth Co., card clothing manufacturer of Philadelphia, Pa., has announced the appointment of Norman Bush as sales representative. He will cover the Middle Atlantic, Middle West and Southern states. Mr. Bush, formerly with the Bush Woolen Mills, attended both Ohio State University and the Lowell Textile Institute. Since the war he has worked in woolen mills and has a first-hand knowledge of carding, spinning and other phases of manufacturing.

Charles E. Walters, vice-president of Abney Mills, Greenwood, S. C., has been elected a vice-president of Erwin Mills Inc., Durham, N. C. Abney obtained working control of Erwin in 1953 through stock purchase.

Jack E. McLaughlin has been appointed assistant manager of the textile sales development department of E. F. Houghton & Co., Philadelphia, Pa., manufacturer of textile processing products, surface active agents and lubricants. Mr. McLaughlin, a graduate of the Philadelphia Textile Institute, joined Houghton in 1951. Before his recent appointment, he was a member of Houghton's technical staff, specializing in textile applications. . . . Election of Dr. James T. Eaton to fill the newly-created position of vice-president, production, was announced at the recent annual meeting of Houghton stockholders and directors. Dr. Eaton joined Houghton in 1937. He was formerly director of research. He was elected to the board of directors in 1950. In his new position, Dr. Eaton will assume responsibility of Houghton's oil manufacturing plants and continue to head the research staff.

J. E. Booth, overseer of the twisting department of Thomaston (Ga.) Mills, has retired after nearly 29 years with the company. Mr. Booth began his continuous employment record in 1926 as a weaver. He served as shift overseer from 1929 to 1950, when he was promoted to overseer.

H. C. Robinson

H. F. Livermore Corp. has announced the appointment of Harold C. Robinson as salesman for its Southern territory to serve North Carolina, South Carolina and Virginia. Mr. Robinson is thoroughly versed in all phases of loom operation, having had experience in weaving, loom-fixing, methods engineering, time study, job evaluation, production costs, variable loom loads and quality control. He is a graduate of Lowell Textile Institute, and has been general overseer at Cedartown (Ga.) Textiles. He was later transferred to Talladega, Ala., to start a new installation and supervise personnel training. Recently Mr. Robinson was associated with Bachmann-Uxbridge Worsted Corp., Talladega, Ala., where he was general overseer in charge of weaving operations.

Wilson Adams, manager of the decorative fabrics department of Cannon Mills Co., has been elected a vice-president of the company. Mr. Adams has been with Cannon since 1949. Prior to that he was with Burlington Mills Corp. He is a graduate of North Carolina State College with a B.S. degree in textile manufacturing and designing.

Albert G. Myers, chairman of the board of Textiles Inc., Gastonia, N. C., was recently honored by the Oasis Temple of the Mystic Shrine when the group met at Charlotte to celebrate its 61st anniversary. Mr. Myers, a past potentate, was accorded the group's highest honors in what was designated as an A. G. Myers Ceremonial.

Robert J. Robertson, Charlotte, N. C., assistant general mill manager for Duplan Corp., has been transferred to Hazleton, Pa., as manager of the company's plant there. Mr. Robertson, who had been in Charlotte about four years, was plant manager and assistant general manager of the Hazleton plant before coming to Charlotte.

Harold Boeschenstein, president of Owens-Corning Fiberglas Corp., Toledo Ohio, has been re-elected chairman of the Commerce Department's Business Advisory Council for 1955. The council is composed

of about 150 of the nation's top business leaders. Elected a vice-president was Crawford H. Greenwalt, president of E. I. du Pont de Nemours & Co. Inc. New members elected to the council include Charles Allen Thomas, president of Monsanto Chemical Co., St. Louis, Mo. Executive committee members of the council include John D. Biggers, Libbey-Owens Ford Glass Co.; John L. Collyer, chairman and president of B. F. Goodrich Co.; and Ralph J. Cordiner, president of General Electric Co., New York.

T. H. Henderson, superintendent of Clinchfield Mfg. Co., Marion, N. C., has been named vice-president in charge of manufacturing for the company. Superintendent since 1919, Mr. Henderson has been succeeded by John Auerhamer, formerly assistant superintendent.

Julius Nill

Julius Nill has joined Metallizing Co. of America as general manager of its Southern division. Mr. Nill is well known among mills in this area for development of metallizing applications to textile machinery parts.

Nelson Kessell, general superintendent of Firestone Textiles Inc., Gastonia, N. C., recently marked his 30th anniversary with the company. He joined the company in Fall River, Mass., at the first textile mill owned by Firestone.

J. J. Norton Jr., general manager, secretary and treasurer of Gaffney (S. C.) Mfg. Co. has been elected to the new post of vice-chairman of the board of trustees of Cherokee County Hospital. John M. Hamrick of the Hamrick group of mills was re-elected chairman.

John Cocker III has been elected president and general manager of Cocker Machine & Foundry Co., Gastonia, N. C. He succeeds his mother, the late Mrs. George B. Cocker, who was president for 16 years until her death last February . . . Other officers of the company include John C. Bodansky, vice-president and treasurer; A. G. Myers, second vice-president; and L. B. Hollowell, secretary. . . . D. Latham Friday, vice-president, general manager and secretary of the firm, has resigned after 36 years with the company. He reportedly plans to form a business of his own.

Raymond L. Matthews has been named superintendent of converting for Sidney Blumenthal & Co. Inc., Caramount Division, Rocky Mount, N. C. Mr. Matthews was formerly assistant manager of Plant No. 3 of Crompton-Shenandoah Co., Waynesboro, Va.

A. Carl Martin has been named manager of textile sales development in the sales department of the textile division of Celanese Corp. of America. Mr. Martin, who was sales manager of staple fiber for the textile division before his promotion, will direct the further development and sales of textile products for the division in his new post . . . Henry A. Norwell, formerly as-

sistant sales manager for staple fiber, has been named manager to succeed Mr. Martin . . . William L. O'Donovan, sales manager of the New York district of the textile division and a vice-president of the company, has been named to assume new and broader duties with the textile division. In the future he will work with U. S. Government agencies and their suppliers and sub-contractors in connection with procurement and development projects involving the use of all Celanese fibers.

M. T. McDearmid, formerly superintendent of Spatex Corp., Charlotte, N. C., has succeeded Jim Parrish as superintendent of Clover (S. C.) Spinning Mills Co. Mr. McDearmid before joining Spartex four years ago managed mills at Russellville and Birmingham, Ala., Douglasville, Ga., and Kings Mountain, N. C. Joseph Guinane, formerly with Gulf Stream Products Corp. at Green Cove Springs, Fla., succeeds W. F. Crowder as assistant general manager of Clover Spinning Mills. Cary C. Boshamer has relinquished his managerial duties at Clover.

J. B. Simpson Jr.

Joe B. Simpson Jr. of Charlotte, N. C., has been named a representative of James Talcott Inc. of New York City. A native of North Carolina, Mr. Simpson will assist Charles T. Brown, also of Charlotte, in working with Talcott clients in the Southeast, and also in the solicitation of new business. Mr. Simpson has for several years been engaged in the cotton yarn business. Following World War II, he became affiliated with Sellars Mfg. Co. of Saxapahaw, N. C., and later with the Walter T. Forbes Co. of Chattanooga, Tenn. Mr. Simpson has also owned and operated the Joe B. Simpson Co., a cotton yarn brokerage business. He is a graduate of Duke University.

Arch E. Cutting has been named sales engineer for the Pneumafil Corp., Charlotte, N. C. Mr. Cutting, a graduate of N. C. State College School of Textiles, will assist George E. Archer, central regional manager for the company. He was formerly associated with the Karastan Rug Division of Fieldcrest Mills, and more recently has been a sales engineer for the warp preparation machinery division of the Uster Corp., with headquarters in Greenville, S. C.

William C. Brown has joined Marshall & Williams Southern Corp., Greenville, S. C., as sales engineer. Mr. Brown was formerly a project engineer with the manufacturing research division of J. P. Stevens & Co. Inc., Greenville.

Lanier M. Allison has retired as general manager of Gold-Tex Fabric Corp., Rock Hill, S. C. The new superintendent at Gold-Tex is George Peeler.

R. W. McCullough and D. F. McCullough, assistant to the president and executive director of sales, respectively, of Collins & Aikman Corp., have been named executive vice-presidents for manufacturing and for sales, respectively, in a reorganization of the company into six divisions. Under the new setup, the divisions will function independently as completely integrated businesses. The corporation has plants at Norwood, Roxboro and Siler City, N. C.

Harry A. Kuljian, president of the Kuljian Corp., Philadelphia, Pa., has been named "Engineer of 1954" by the Pennsylvania Society of Professional Engineers.

Walter P. Hope has been appointed Southeastern sales representative for the corn products department of Anheuser-Busch Corp. Mr. Hope, who will make his headquarters in Columbus, Ga., will assist C. H. Conner Jr., Southeastern sales manager for the department, with headquarters in Charlotte. A native of Union, S. C., Mr. Hope has formerly been associated with Keever Starch Co., Dixie Size & Chemical Co. and A. E. Staley Mfg. Co.

Jack Frye, president of General Aniline & Film Corp., has announced to the company's board of directors that he wishes to resign from the presidency and as a director, effective April 1, to devote attention to a new aviation development along with other interests. John H. Hilldring, executive vice-president, has been named to succeed Mr. Frye.

Ralph E. Howell has been named chief chemist and plant manager for Charlotte (N. C.) Chemical Laboratories Inc. Mr. Howell is the former manager of the Norcross Corp. Prior to that he was chief chemist and plant manager for Frank G. North Inc. for 16½ years. He began his career with A. E. Staley Mfg. Co.

P. E. Findlay, vice-president in charge of sales for Bibb Mfg. Co., will retire from active duty with the company on May 1 after more than 60 years of service. Mr. Findley first joined Bibb in 1905 as a secretary. He advanced step by step to higher jobs. In 1947, he was elected a vice-president, moving up from the position of general sales manager, which he had held for several years. His son, Prentiss Findlay Jr., has been general superintendent of the mills since 1944.

Douglas C. Lynch, formerly executive vice-president of Brush Electronics Co., Cleveland, Ohio, has been named president of the company. Mr. Lynch joined the company in 1952, having previously been head of the international operations of Corsley Division of AVCO Mfg. Corp., and later a senior staff executive of Willys-Overland Motors Inc.

Larry J. Weltman has joined Intertex Corp., New York City, as executive vice-president and general manager. Mr. Weltman recently resigned as sales manager of the Crescent Corp., machinery dealers located in Fall River, Mass. He joined Crescent in 1934.

Dr. Alvan H. Tenney has been appointed manager of market research for Carbide and Carbon Chemicals Co., a division of Union Carbide and Carbon Corp. In his newly-created position, Dr. Tenney will be responsible for the surveys of future markets for established chemicals as well as new chemicals emerging from the laboratories. He will assist Dr. R. L. Bateman who was recently appointed director of product development.

C. M. Black, vice-president and secretary of The Borden Mfg. Co., Goldsboro, N. C., has retired after 40 years with the firm. E. L. Caviness has been named secretary and W. A. J. Peacock has been named vice-president in charge of manufacturing and standards to succeed Mr. Black.

Hugh Gwyn Chatham II has been named president of Chatham Mfg. Co., Elkin, N. C., succeeding Albert L. Butler. Mr. Butler was named chairman of the board following the resignation of Thurmond Chatham. The new president, Hugh G. Chatham, has been active with the company in various capacities since 1946. He was recently named as Elkin's "Young Man of the Year for 1945." Mr. Butler had served as president of the firm since 1941.

A special technologist has been added to the chemical products and materials development division of The Goodyear Tire & Rubber Co. at Akron, Ohio. William F. Welch will handle development and customer service work involving the application of Chemigum latices to textile fabrics. Mr. Welch received his degree in textile chemistry from Lowell Textile Institute. He is a member of The American Association of Textile Chemists and Colorists and Delta Kappa Phi fraternity.

John F. Veach

John F. Veach has been appointed sales representative for Emmons Loom Harness Co., Lawrence, Mass. Mr. Veach, a graduate of N. C. State College, will make his headquarters at Lexington, N. C. He will cover all of Virginia and also eastern North Carolina for Emmons.

B. R. Jernigan, treasurer of Dyersburg (Tenn.) Cotton Products Inc., has been elected a vice-president of the Tennessee Manufacturers Association.

Aubrey C. Hobbs, a textile engineer formerly associated with Standard-Coosa-Thatcher Co., Chattanooga, Tenn., has been named vice-president and technical director of Aberfoyle Mfg. Co., Philadelphia, Pa. Mr. Hobbs will fill a newly-created position and will be in charge of quality control and development for the company and its subsidiaries from headquarters at Rex Mills Inc., Ranlo, N. C. A graduate of the Georgia Institute of Technology, he was at one time on the executive committee of the technical advisory board of the Institute of Textile Technology, Charlottesville, Va.

H. P. Southerland has resigned his position as secretary and general manager of Joy Silk Mills Inc., Hartsville, S. C. Mr. Southerland, who has not announced his future plans, had been with the company since its founding in 1936.

Robert L. Amsler has been appointed to

the product development group of The Chemstrand Corp., Decatur, Ala. Prior to joining Chemstrand, Mr. Amsler was associated with E. I. du Pont de Nemours & Co. Inc., Wilmington, Del., and James Lees & Sons Co., Glasgow, Va. . . . Joseph A. Lopez has been named sales representative for the company, working out of the general sales offices in New York City. Assigned to the nylon sales group, Mr. Lopez was formerly with Van Raalte Co. as a project engineer and had been with Kanmak Mills Inc., Kulpmont, Pa., as general manager. Before that he was a textile engineer in the nylon division of Du Pont.

C. Jordan Dulin

C. Jordan Dulin has been named manager of the Charlotte, N.C., branch office and warehouse of Arnold, Hoffman & Co., Providence, R. I., succeeding Dwight L. Turner. Mr. Turner has been transferred to head the company's new Atlanta, Ga., office and warehouse. The Charlotte office, which formerly served all Southern states, will cover Virginia, North Carolina and South Carolina, while the new Atlanta office will serve Georgia, Florida, Tennessee, Alabama, Louisiana, Mississippi, Oklahoma, Arkansas and Texas.

J. W. Fite, president of Cutters Exchange, Nashville, Tenn., has been elected chairman of the board of the company. A. J. Rebrovick, vice-president, succeeds him as president. Other officers elected include G. O. Sledge Jr., formerly treasurer, now a vice-president; Ann Johnson, formerly secretary, now a vice-president; and Marguerite Donnelly, secretary-treasurer.

Dr. Donald Price, technical director of Oakite Products Inc. and a widely-known authority on surface-active agents, detergents and cleaning materials, has entered the consulting field. Author of the book *Detergents, What They Are And What They Do*, Dr. Price will specialize in surface-active agents, cleaning materials, the chemistry of oils and fats and research administration. Before joining Oakite in 1945, he had been associated with National Oil Products Co., Harrison, N. J., and the Interchemical Corp., New York City.

Charles E. Wood has announced his resignation from Boger & Crawford Inc., effective Feb. 4. Mr. Wood has been Southern sales representative for that firm, handling combed natural and mercerized cotton yarns as well as synthetic yarns. His future plans will be announced later.

Karl M. Currier has been appointed director of the textile research department of American Viscose Corp. at Marcus Hooks, Pa. In the new post, Mr. Currier succeeds the late Edgar S. Kennedy. Graeme G. Whytlaw will continue as assistant director and Harrison D. House, formerly executive assistant to Mr. Currier, has also been named assistant director. Mr. Currier, who joined Avisco in 1931 as a technical representative, has been a member of the department since it was founded in 1939. . . . David M. Ebert has been transferred to the experimental spinning group at American Viscose's research and development division in Marcus Hook. He will assist Joseph E. Ross, group head, in co-ordinating the work of the experimental engineering fundamental room and that of the over-all tire yarn development program. . . . Joseph L. Hunter has been transferred to a rayon staple sales assignment at American Viscose, Charlotte, N. C., sales office. Previously a Filatex salesman there, Mr. Hunter is assuming the duties of Leon Ham, who resigned recently. F. Lawrence Rapp, formerly of Avisco's textile research department in Marcus Hook, will succeed Mr. Hunter in Filatex sales. Mr. Hunter joined Avisco at its Roanoke, Va., plant in 1948, and after reaching the position of quality control analysis there, he was made a Southern representative for the Filatex Division at Avisco's Charlotte office, a post he held until his recent appointment. Mr. Rapp received his B. S. degree in textiles at North Carolina State College. Prior to joining Avisco as assistant to the head of the knitting division at the textile research department, he served three years in the Army Engineers.

OBITUARIES

George Beisheim, 76, recently retired vice-president and treasurer of Sidney Blumenthal & Co., New York City, died Jan. 25 at his home in Ossining, N. Y. Survivors include his widow, a son and two grandchildren.

Matt Denning, 58, former manager of the finishes division of E. I. du Pont de Nemours & Co. Inc., died Jan. 25. Mr. Denning joined Du Pont in 1920. In 1932, he was transferred to the fabric and finishes department as director of trade sales of the finishes division. He became division manager in August 1947. Two years ago he retired because of ill health. He is survived by a daughter.

James Alonzo Groves, 79, president of Peerless Spinning Co., Lowell, N. C., died Jan. 27. Mr. Groves was also founder of Oakboro (N. C.) Cotton Mills Co., of which his widow is president and treasurer. For 42 years Mr. Groves was secretary and treasurer of Wiscassett Mills Co., Albemarle, N. C., a position from which he retired in 1945. In addition to his widow, he is survived by a number of nieces and nephews.

Edgar Sloan Kennedy, 57, director of the textile research department of American Viscose Corp., died Jan. 23 while on vacation at Delray Beach, Fla. Prior to joining American Viscose in 1926 as a salesman, Mr. Kennedy was a sales representative for the Wildman Mfg. Co., Norristown, Pa. At American Viscose, he started the company's service department and eventually, in 1939, founded the textile research department. He is survived by his widow, a daughter and three sons.

Columbus Dean Kennett, 59, head of C. D. Kennett & Sons, textile supplies, Greenville, S. C., died January 31 at Greenville.

Hector W. Nelson, 85, one-time superintendent of the Falls of Neuse Mills, Roanoke Rapids, N. C., died recently. Mr. Nelson, a native of England, was instrumental in organizing the first textile school in Roanoke Rapids. At one time he was a professor at Lowell (Mass.) Technological Institute. He is survived by his widow and two brothers.

John D. Willingham Sr., 67, founder and president of Egan Cotton Mills, College Park, Ga., died recently. Mr. Willingham, whose son J. D. Jr. is vice-president of Egan, was for a number of years vice-president of Piedmont Cotton Mills, East Point, Ga. Surviving, in addition to his son, are a daughter and a sister.

MILL NEWS

CONSTRUCTION. NEW EQUIPMENT. FINANCIAL REPORTS. CHARTERS. AWARDS. VILLAGE ACTIVITY. SALES AND PURCHASES

GREENSBORO, N. C. — Stockholders of Burlington Mills Corp., meeting at Wilmington, Del., Feb. 3, approved changing the name of the company to Burlington Industries Inc. as a new designation for the over-all parent company embracing Burlington Mills and the aggregate of its affiliated and subsidiary companies. Burlington Industries Inc. will serve as the parent company for Burlington Mills, Burlington Hosiery, Galey & Lord, Peerless Woolens, Burlington Decorative Fabrics, Mallinson Fabrics, Burlington Narrow Fabrics, Pacific Mills, Goodall Fabrics and Burlington International. Burlington Mills will continue as the designation for a principal division producing fabrics of man-made fibers and blends of man-made and natural fibers. The new corporate designation will not result in any basic change in merchandising, trademarks or selling areas, it is said.

MOORESVILLE, N. C.—Templon Spinning Mills Inc., here, is building an 11,000 square foot addition to its plant that will increase floor space about one-third. Plans call for the completion of the project by April 1. The cost of the addition is estimated at $55,000. Some 50 additional employees will be required by the expansion.

JOHNSTON, S. C.—Riegel Textile Corp., Ware Shoals, S. C., has announced that it will build a 150,000 square foot fabricating plant here. Construction plans have not been fully developed, but the plant is expected to employ some 400 persons in full operation. Riegel made known several weeks ago that it would move its fabricating department from Ware Shoals because inadequate space would not allow present and future plans for expansion. The department produces diapers and pillowcases.

SPINDALE, N. C.—A modernization program costing approximately $400,000 is nearing completion at Spinners Processing Co. here. The complete plant operation has been rearranged and machinery modernized, the company reports. In addition to renovation of the entire building, the warp mercerizing range was modernized, dye equipment was renovated and a two-story building of about 6,000 square feet was constructed for a new laboratory, dye mixing room and dye storage facility.

HENDERSON, N. C.—Mount Hope Finishing Co. Inc., Butner, N. C., has obtained a 60-day option to lease with the privilege of buying at the end of five years the former main plant of Corbitt Truck Mfg. Co. here. Mount Hope has not disclosed its plans for the site except to say that the job security of its present employees will not be endangered no matter what action is taken. The building is a one-story brick and steel structure containing 138,000 square feet of floor space.

HUNTSVILLE, ALA.—Huntsville Mfg. Co. has announced that preparatory work has started on its major modernization program that is expected to take the rest of this year to complete. Installations will include several types of new machinery, the reworking of many machines now in operation, various interior improvements and worker comforts such as air conditioning. The plant is a subsidiary of M. Lowenstein & Sons Inc. of New York. It employs 1,600 persons on a three-shift program.

ELKIN, N. C.—Chatham Mfg. Co. has announced that it is returning to a six-day-per-week schedule and re-opening its old mill. Re-opening of the old mill, coupled with full production at the other Chatham units, will mean recalling approximately 100 production employees, according to R. G. Chatham, personnel director.

BOONVILLE, N. C.—The plant and land of Beaver Creek Weaving Co., here, have been sold to Aetna Realty Co., New York City, which reportedly will lease the property to a textile operator who will open it soon with 100 or more employees. The lessee was not identified. The mill was closed last Summer and its weaving machinery and other equipment were subsequently sold.

BESSEMER CITY, N. C.—Algodon Mfg. Co. Plant No. 1 has reportedly been offered for sale. The plant's spinning equipment has already been liquidated, it is said.

SPARTANBURG, S. C.—The $400,000 expansion and modernization program of Drayton Mills, here, is well under way. Some 8,300 Saco-Lowell spindles were installed during 1954 and installation of 7,800 more is expected during 1955. New opening equipment is also included in the program as well as additional carding, lap winding, combing and drawing. Recent installations included a Barber-Colman spooler and warper in the cotton preparation department. A new Johnson nine-can slasher has been installed in the plant's rayon preparation section. Drayton is operated by Deering, Milliken & Co.

GASTONIA, N. C.—The Arlington Plant of Textiles Inc., the largest of 11 plants operated by the firm, has resumed operations here after being closed six months. Arlington produces fine combed yarns and employs some 270 persons when in full operation.

STONY POINT, N. C.—Killingly Worsted Mill, here, has been sold by Bachmann Uxbridge Worsted Corp., Uxbridge, Mass., to the James J. Axelrod Foundation, Woonsocket, R.I., and will be operated by Airedale Worsted Mills Inc., according to T. R. Redlack, Killingly superintendent. The plant consists of two buildings of about 38,000 square feet, 4,032 worsted spindles and 24 broadlooms.

LAURINBURG, N. C.—Waverly Mills Inc. has started the construction of a new addition to its plant here. Some 37,000 square feet of floor space will be added, it is said.

RALEIGH, N. C.—A state charter of incorporation has been awarded Stedman Mill, here, to deal in textile products. Authorized capital stock was reported at $100,000, subscribed stock $300 by A. T. Allen Sr., A. T. Allen Jr. and J. A. Allen, all of Raleigh.

BETHUNE, S. C.—Directors of The Kendall Co., Boston, Mass., have voted to erect a new finishing plant here. The plant will be built and operated by the finishing division of the company. Some 220 persons will be employed. While detailed plans are still incomplete, it is expected that the plant will be a one-story structure, providing some 300,000 square feet of manufacturing and storage space. The engineering work is being done by Lockwood Greene Engineers Inc. and Daniel Construction Co. will begin construction work this Spring, it is said. Kendall's cotton mills division, with headquarters in Charlotte, N. C., operates seven plants in North and South Carolina.

GREENSBORO, N. C.—Burlington Industries Inc. has announced plans for a series of improvements at its plants in Gaston County, N. C. Immediate improvements will represent an investment of some $1 million and that much more is expected to be spent over a two-to-three year period. The four plants and proposed improvements include: Mays Plant, Cramerton—renovation and construction of a new roof plus erection of additional outfall lines for the finishing operations; Flint No. 1, Gastonia—a new front will be built, windows will be bricked up and a new air change and humidification system will be installed; additions will be built on both ends of the plant, plus additional space at the rear; long range plans include installation of a very large amount of new and improved machinery during 1956 and 1957; Flint No. 2, Gastonia—a small one-story addition is planned at the east end for additional storage space; a substantial amount of new machinery, at a cost of about $250,000, will be installed, replacing present equipment; Ranlo (N. C.) Plant—a sewage disposal plant will be built.

A NEW 'CAPITAL EQUIPMENT' ITEM

Saco-Lowell's Positrol Slasher

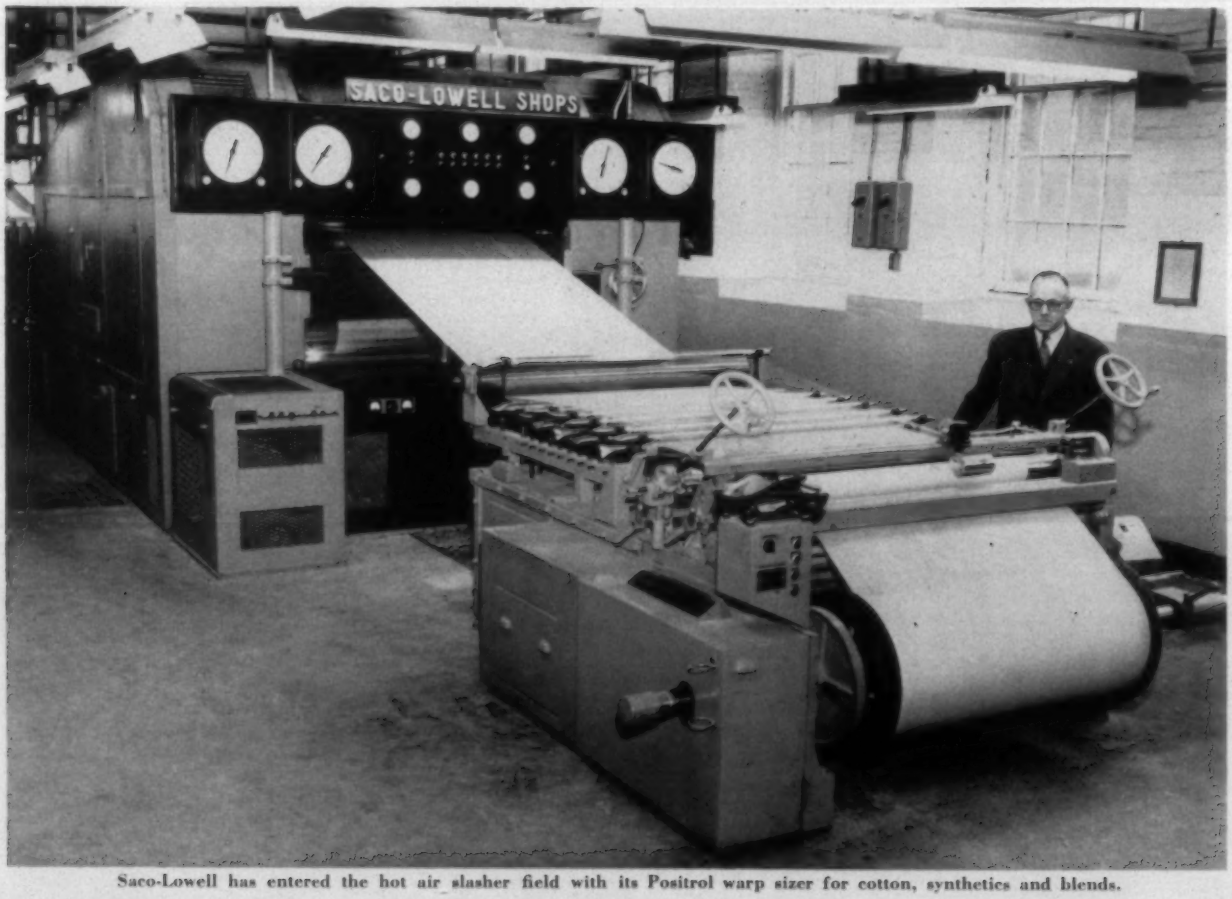
THE newest hot air slasher to be offered to American mills, Saco-Lowell Shops' Positrol warp sizer, features positive control in these categories: size level, temperature and application; air temperature and moisture; yarn tension; sheet width in dryer; loom beam density; yarn regain; humidity in exhaust air and in each compartment; press roll loading; and yarn speed.

According to Saco-Lowell, one of the new units has been running for some time at 96 per cent efficiency in the plant of Bates Mfg. Co. at Biddeford, Me., using thin-boiling starch.

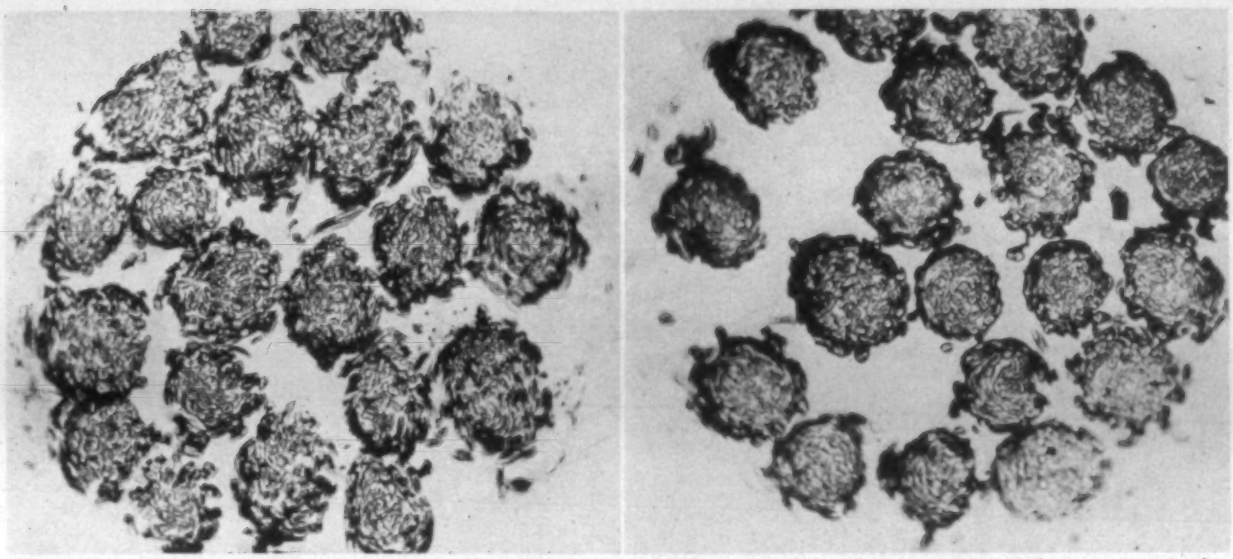
Saco-Lowell reports that it has found that the electrolysis which takes place in the size box when dissimilar metals are immersed in boiling size accelerated the corrosion of the component parts and, in some cases, affected the composition of the size through the combined action of hydrolysis. For this reason the size box on the new slasher has been constructed of a single type of material in order to keep these destructive forces at a minimum. The electrolytic action which takes place in the size box causes a deposit of minute metal particles on the yarn and this has been found to be the cause of some very spotty results obtained in the dyehouse and finishing plant.

In designing and building the vat, the company reports, a great deal of consideration was given to the problem of capacity of size mix. After many tests, a 28-gallon unit was chosen and designed so that all pockets of the collection of the size mix are avoided and so that the action of the rolls, coupled with the proper location of baffles and steam inlets, keep this size mix in constant movement. The size vat itself has such a comparatively small capacity that the automatic size level controls are constantly calling for a fresh supply. This constant supply of fresh size mix, plus the fact that less steam is required to keep this quantity at a proper temperature, maintains a more uniform viscosity than would be possible in other vats, it is pointed out.

Each size box has an automatic level and temperature control. Temperature is controlled through two sources. One source is an open coil for continual agitation with fine apertures. This coil extends across the box. The other source of heat is an open coil for cotton but can be furnished closed for wool and synthetics at the front of the box, covered by a stainless steel baffle. As a result of the convection and other currents on one hand, and the motion of the yarn on the other, the contents of the size box are in constant circulation in more or less horizontal plane, which is said to create



Saco-Lowell has entered the hot air slasher field with its Positrol warp sizer for cotton, synthetics and blends.



Photomicrographs of yarn sized *(left)* on old Saco-Lowell slasher, can dried, as compared with sizing *(right)* of the same yarn in the same mix at the same temperature on the new Saco-Lowell hot air slasher.

a condition entirely different from the irregular type of flow in the conventional size box.

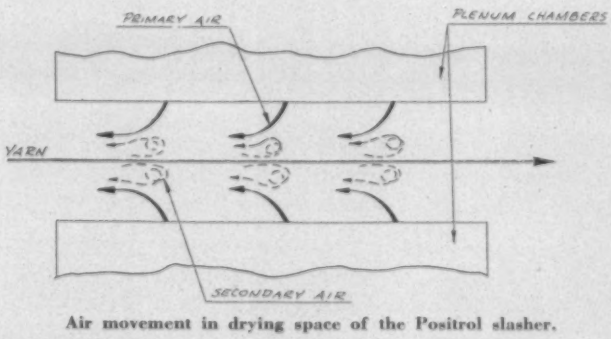
However, Saco-Lowell points out, the advantage created by these conditions are secondary to the advantages developed by the design and construction of the assembly consisting of the size rolls, the squeeze rolls and finisher roll. In conventional size boxes, Saco-Lowell has found many mechanical faults it reports. First there is the problem of keeping the stuffing boxes tight and free from leakage and the gudgeons properly lubricated to prevent excessive wear. Second, there are no adequate means to prevent slippage of the yarn between the squeeze rolls and sized rolls while the slasher is running. Third, there is the inequality in the sized yarn coating on account of the last end of the wrap of the covering blanket. Where these details may seem trivial, the company cautions, a photomicrographic examination of the sized yarn shows that these are critical conditions. All of these are reportedly eliminated in the new slasher.

The new size vat contains an assembly of only four rolls, two of which are stainless steel and two of a special patented rubber covering. Described by the company, this rubber covering is very hard at the part next to the steel shell. Toward the outside, the hardness gradually decreases so that the area contacting the yarn is sufficiently yielding to allow each individual thread to sink into the soft rubber.

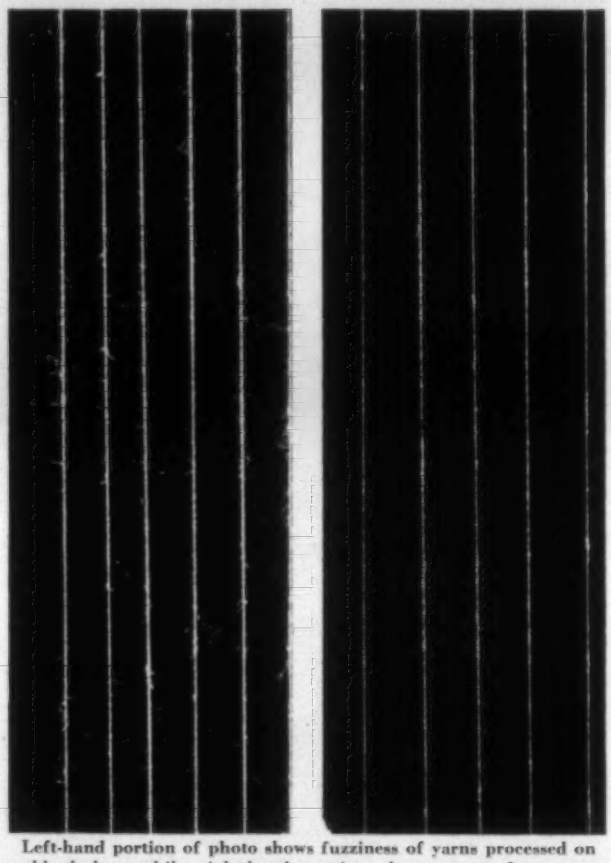
The yarn coming from the creel first passes over the top of the back size roll, then through the nip of the squeeze roll and its corresponding size roll. As the sheet of yarn passes over the back size roll, it soon enters the mass of boiling size, so that there is some adsorption in the area from the size level to the nip. However, in the nip of the rolls, the entrained air found in the yarn is forced out by heat and pressure, thus allowing the yarn, which is expanding as it is released from the nip of the rolls, to adsorb more and more size as the sheet travels from the undersize of the back squeeze roll to the nip of the finishing pair. About 75 per cent of the distance traveled is in the area where it is completely immersed in the hot liquid. The sheet passing through the nip of soft rubber surface of the finishing roll, which is under a very light pressure, removes the surplus size on account of the individual threads separately penetrating the soft rubber. As a result, the yarn retains its cylindrical section and eliminates harmful connecting film which causes poor splitting and harmful breakouts.

The company reports that yarn from the new arrangement will pick up as much as six per cent additional solids from the size mixture, through a pneumatic loading control. The walls around each individual thread in the sheet are said to act as a sort of "former", which keeps the film of size where it belongs—around the circumference of the yarn and not spreading at random from one edge of the sheet to the other. Yarn processed in the new size vat has reportedly shown superior weaving qualities since it is round and smooth, with a tough protective film which passes through the drop wires, harnesses and reed with a minimum of shedding and with a noticeable reduction in loom stops caused by warp breaks.

Described as two major characteristics of the new unit are, first, the movement of the air is in the opposite direction to that of the yarn—a condition described as "counterflow." Second, the air with the greatest moisture content is in contact with the wettest yarn. The entering air first passes through a filter, then through a heater to the blower which discharges it to a duct emptying into a plenum. From the plenum the air passes through a nozzle to the yarn which is moving in the opposite direction to that in which the air movement is taking place. The air then recirculates until it reaches a point of saturation beyond which drying is not possible. In this recirculating cycle, part of the saturated air is discharged through the automatic damper. This deficiency is made up by air from the room moving into the third pass.



Air movement in drying space of the Positrol slasher.



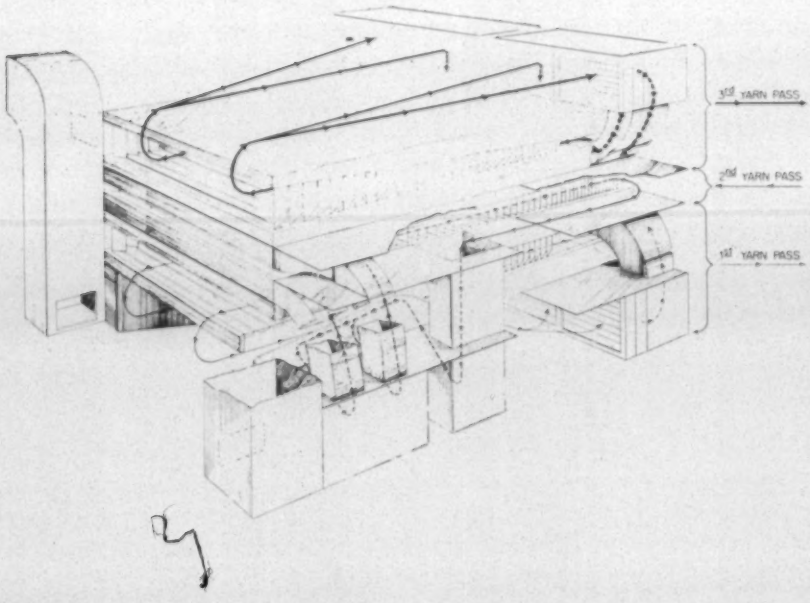
Left-hand portion of photo shows fuzziness of yarns processed on old slasher, while right-hand portion shows yarns from new Positrol slasher to be round and smooth, covered by a tough, protective film.

Part of the air in the third pass moves down to the second pass and part of the air thus displaced moves down into the third pass.

The plenum unit of the dryer is made up of four chambers, two singles and two doubles, with 20 specially constructed nozzles in the singles and 40 nozzles in the doubles. These nozzles are so arranged that they are exactly opposite each other in the opposing plenum chamber which forms a pass. This pass is where the drying action takes place. There is also a 24-inch wide chamber on each side of the plenum assembly which is used for the movement of saturated air, return ducts, steam pipes, etc. Also in this 24-inch area are the three separate sheets which allow a three temperature control on three passes. Each plenum chamber is provided with two heaters, so that there are six complete heating units, each with the necessary filters, blowers and controls.

As the yarn enters the drying chamber, it passes through the lower pass between the two plenum chambers to a large guide roll made of a steel rib construction with Teflon covered ribs, at the front, where it makes a 180 degree turn into the second plenum chamber. A similar guide roll discharges the sheet into the top or third plenum chamber, at the exit of which there is another guide roll of smaller diameter which delivers the yarn sheet to the back measuring roll on the head end.

In each plenum chamber there is a gentle current of heated air moving at controlled velocity which is discharged through a series of curved nozzles into the drying chamber in a direction opposite to that of the moving sheet of yarn but not against the yarn. As this high velocity current approaches the sheet of yarn moving in the opposite direction, a series of secondary or low pressure eddy currents are created as a result of the difference of air movement and yarn movement. These low pressure air currents contain the saturated air which eventually reaches the discharge vent. At the terminus of each set of nozzles there are a series of adjustable baffles which perform a very important function in the control of the air currents and the disposition of the yarn on the rollers. In other words, the company points out, if it were not for these baffles, the sheet would contract as it dried. But these baffles, by setting up secondary air currents, relieve certain internal pressures and therefore force the yarn to travel in a straight line perpendicular to the axis of the carrier rolls throughout the entire rolls of sheet. The company points out that it is also important to know that this control of the air currents makes it possible



In the Positrol slasher there are three air movements. One is high-velocity, low-pressure air coming down from the top of the sheet and another comes up from the bottom and meets with the first, forming a vertex a short distance from the lateral margin. It was also found that there was a high-pressure area outside of this vertex. The third is an air movement between these two air tracks, flowing parallel to the yarn sheet and created by the yarn movement. This air current, having a low velocity but high pressure, exerts a force against the two aforementioned air tracks, as well as against the lateral margin or outer edge of the yarn sheet. The lateral margin, having the least resistance to this force, moves back toward the center of the sheet until enough resistance is built up by yarn tension to hold it. It was found that inserting a series of properly arranged and designed deflectors into this third air movement releases this pressure on the yarn and also moves the vertex of the other two air tracks out and away from the lateral margin. By making angular adjustments on these baffles, it will be noticed that the yarn sheet expands rather than contracts between its two supporting rolls.

to maintain a controlled temperature gradient throughout each of the drying chambers.

For example, at the point of entrance of the yarn at the first pass, the temperature may be 300° F. At the back end of the same plenum chamber the temperature has fallen to approximately 275° F., through drying. At the discharge point of the third pass, the temperature may reach as low as 250° F. At the discharge point where the yarn leaves the dryer, the yarn may contain as much as 15 per cent moisture. But on the outside of the slasher there is a cooling fan, so that the air, at atmospheric temperature, in rapid movement by the cooling fan and the movement of the yarn through the head end, brings the moisture content to six, seven or eight per cent as required.

When the air in the first pass becomes so saturated that it is no longer effective as a drying medium, an automatically controlled damper opens to allow the discharge of this very wet air and simultaneously to permit the entrance at the yarn discharge end of the third pass, of the required amount of air from the room. All this air movement is controlled by a thermocouple located at the exhaust fan or at the back of the slasher. This thermocouple indirectly measures the moisture content of the air at the end of the first pass.

Saco-Lowell points out that the air movement is progressive and that when the damper in the discharge duct opens for the passage of the wet air, a corresponding volume of partially saturated air passes from the second pass into the first and then from the outside to the third. All these movements are controlled and synchronized, the company reports. The company points out that this principle of closely controlled and synchronized air movement is found in no other slasher.

All of the rolls in the new dryer are mounted on antifriction bearings. These rolls are all of comparatively large diameter, in order to keep the internal strains and stresses due to flexing as low as possible. The large rolls are ribbed and are of No. 316 stainless steel. The heaters are all provided with automatic steam traps in order to assure complete drainage and economical use of steam. The company estimates that the water rate of the dryer will be between 1.00 and 2.00 pounds of steam at 100 p.s.i. per pound of yarn.

Included as standard equipment with the slasher is an air compressor of such capacity to furnish the volume of air required for the pneumatic pressure on the squeeze rolls, to lift the squeeze rolls and to furnish the air necessary for actuating the control instruments.

The slasher requires a floor space of 63 feet, three and three-quarter inches by 17 feet, eight and three-eighths inches. This is the overall width. The size vat and drying cylinder are approximately 31 feet, nine and one-half inches long. The overall height is nine feet, three and five-eighths inches. When the magazine creel is used, there must be a clear area 36 feet long by a minimum of ten feet wide either to the right or left behind the size box.

Current production of the new slasher will be equipped with the Model 45 head end and a multi-motor drive. The slashers will use either Westinghouse, Reliance or General Electric drives.

The eighth annual Cotton Merchandising Clinic will be held May 6-7 at the Driskill Hotel, Austin, Tex. The event is sponsored by Cotton Economic Research, Cotton Research Committee of Texas.

A HANDBOOK OF TWISTING

By NEAL TRUSLOW, Superintendent of Product Development, United States Rubber Co., Winnsboro, S. C.

– Chapter Five, Part One (Effect of Twist on Dimensional Changes) –

As the twist is changed in a strand of fibers or filaments, the length of the strand is changed. Depending on the method of calculation, this change in length is commonly called the contraction or the take-up. Reduced to a percentage basis,

$$C = \frac{(Lo - Lf) \times 100}{(\quad Lo)} \qquad (1)$$

$$\text{and } T = \frac{(Lo - Lf) \times 100}{(\quad Lf)} \qquad (2)$$

where C = % Contraction
Lo = Original length
Lf = Final length
T = % Take-up

$$\text{then } C = \frac{T\ (Lo)}{(Lf)} \qquad (3)$$

If the strand becomes longer as the twist is changed, the contraction or take-up is assigned a negative value.

The change in length is caused by the fact that for a twisted strand the helical path taken by the outer layers of fibers is longer than the path taken by the more centrally located fibers. Then in a twisted structure, the outer fibers are under tension which causes them to stretch and the central fibers are under compression which causes them to buckle.

If we make such simplifying assumptions as no stretch in the outer fibers, no change in yarn diameter and an "ideal" yarn so that the fibers are arranged in concentric helices around the yarn axis, we are able to derive a simple formula relating the take-up to the helix angle occupied by the outer fibers:

$$T = (1 - \cos A) \times 100 \qquad (4)$$

and if the yarn elongates the take-up is given by

$$T = (1 - \sec A) \times 100 \qquad (5)$$

Another equation derived by Besset is

$$C = 100\ (1 - (\quad \frac{1}{\sqrt{1 + K M^2}}\quad)) \qquad (6)$$

where M is the cotton count twist multiple and K is a correction factor depending on the fiber as follows:

Fiber	*K*
Cotton	0.0131
Worsted	0.0158
Woolen	0.0105
Filament Viscose	0.0289

This formula is based on experimental values fitted into a theoretically derived relationship. It appears to give rather high values for most yarns twisted on production equipment.

Extensive tests on a large number of different types of yarns made of both staple fiber and filament have shown that actual take-up is approximately the same as is predicted by these formulas. Then in order to calculate the take-up due to twisting when only a minimum of data is available, the twist angle can be computed as described in Chapter III and the cosine value inserted in Formula (4). However, the cotton count twist multiple is usually more available and when this is known the take-up can be read from the curve shown in Fig. 5-1. When using this curve more accurate results are obtained if the twist multiple is adjusted for the effect of yarn density. This is shown as follows:

$$\text{Adjusted T.M.} = \frac{(\text{Turns per inch}) \times \sqrt{1.5 \times S}}{\sqrt{\text{cotton count}} \qquad \sqrt{G}} \qquad (7)$$

where G = Fiber specific gravity
= 1.5 Cotton
= 1.1 Nylon
= 1.2 Orlon
= 1.3 Wool
S = A correction for low bulk of spun yarns which is approximately 1.2

A number of empirical forms have also been used by various investigators in this field.

For cotton yarns, a simple formula has been frequently used. Bogdan suggests

$$T = 2.67\ T.M. - 4.93 \qquad (8)$$

and Otto has recommended

$$T = 2.72\ T.M. - 5.21 \qquad (9)$$

A more complicated formula for use on cotton yarns has been developed by Woodbury. For practical spinning, he found that the heavier yarns had a greater contraction at the same twist multiple. For his formula

$$T = \frac{[K \pm (A)\ (0.015)]\ (T.M.)^2}{\sqrt[3]{N}} \qquad (10)$$

where K = constant = 0.967 for carded cotton
A = $(5.00 - T.M.)^2$
N = yarn number in the cotton count

Another empirical formula based on Fig. 5-1 which can be used for high-twist filament yarns is:

$$T = 5 + 2.7\ (T.M.. - 4)$$

A knowledge of the contraction experienced by yarns is valuable in many cases in the textile industry. By the use of the above formulas and graphs, it is possible for the thrower to calculate the final size and yield of his yarn. Also when spinning staple yarns, it is possible to use the above data to select the proper draft gears to spin a given yarn size from a certain roving or to determine the effect on yarn size when the twist multiple of a certain yarn is changed. If the textile technician uses these formulas he will be able to calculate more accurately the final size of the yarn being spun and therefore will not have to be so dependent on the trial and error methods which are normally used and which are so expensive in time and money.

When a twisted singles yarn is twisted into a plied structure, the change in length is affected by the change in twist

of both the singles and the ply. It is easy to visualize that when a Z twist singles yarn is made into an S twist ply yarn, that during the first part of the twisting operation the twist in the singles will be removed and cause the singles to elongate. This in turn will cause an elongation of the plied yarn. However, as additional ply twist is inserted, the singles yarns must take a longer and longer path because of their helical deformation, and this will tend to offset the increase in length of the singles. As the ply twist is increased still more, the singles will start to be twisted in the opposite direction which will cause them to shorten and then this shortening effect is added to the shortening effect of the helical deformation. When this final stage is reached, the contraction or take-up of the yarn proceeds at a rapid rate.

When a Z twist singles yarn is made into a Z twist ply yarn, only this rapid rate of contraction is observed because the singles twist is never reduced.

A mathematical expression for relating the total ply yarn contraction to the twist must take into consideration the change in length of the singles as well as their helical path. This type of calculation can best be done in steps. First the per cent change in the length of the singles is calculated by Formula (12):

$$\% \text{ Take-up in singles length} = 1 - \frac{(2 - \cos A_1)}{(2 - \cos A_2)} \times 100$$

where A_1 is the original helix angle of the singles yarn before it was twisted and A_2 is the helix angle of the singles yarn as it lies in the ply after twisting. It can be seen that the above expression can give a negative or a positive result depending on whether the singles is untwisted to elongate it or twisted tighter to shorten it. Then the per cent take-up of these yarns due to their being forced into a helical path can be calculated using Equation (4) except that the value of Q, the ply yarn helix angle, is substituted for A. Finally these two values for per cent take-up can be added together algebraically in order to determine the total over-all change in length.

Fig. 5-2 shows experimental results obtained by measuring the contraction of various yarns when they were twisted into a plied structure. For most purposes this graph can be used easily and with fairly accurate results in order to estimate the amount of contraction of yarns when they are plied.

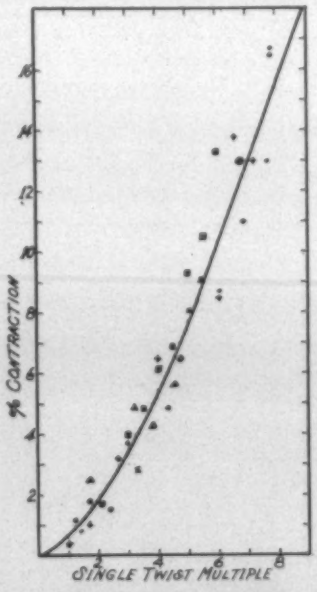


Fig. 5-1—The contraction of singles yarn when twisted is approximately the same for a wide variety of materials.

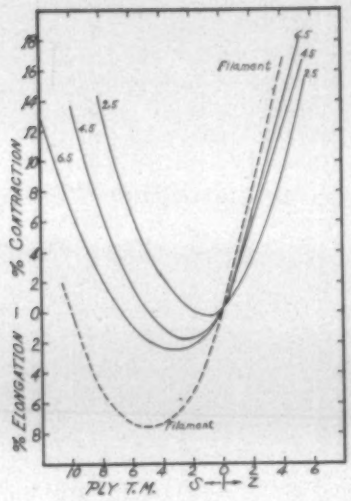


Fig. 5-2—When yarns are plied the elongation or contraction is dependent on both the singles and the ply twist. In these curves the filament curve represents the change in length for a two-ply viscose filament with a 6.8 "Z" singles twist multiple. The 6.5 curve represents the change in length for a cotton yarn with a 6.5 "Z" singles twist multiple. The 4.5 curve is for a spun viscose rayon with a 4.5 "Z" singles twist multiple. The 2.5 curve is for a spun Orlon with a 2.5 "Z" singles twist multiple.

These curves have been found to be reliable for two-ply through nine-ply yarns and the spun yarn curves (2.5, 4.5 and 6.5) have been found to represent the contraction for cotton, Orlon and rayon with a variety of different staple lengths and denier.

The filament curve is appreciably different from the spun yarn curves. This is believed due to the fact that the filament yarn has very little air space within it and therefore very little "pulling down" is observed, whereas in the spun yarns this does occur with a consequent increase in the density of the yarn at the higher twists.

So far we have considered the effect of twist on the length of the yarn. The diameter of yarns is also affected by twist although many of the formulas for yarn diameter have ignored its effect, such as the formulas by Ashenhurst or Wakefield or Taggart or Pierce, which can take the form of

$$\text{yarn diameter in inches} = k \frac{1}{\sqrt{\text{yds. per lb.}}} \qquad (13)$$

where k = .95 for silk
= .92 for cotton or linen
= .93 for viscose rayon staple
= .88 for worsted
= .85 for wool

However, it is well known that as the twist is increased, the fibers are pressed more tightly together. This causes a reduction in the diameter of the yarn, until the limiting region is reached where the yarn density approaches the fiber density. In most yarns spun from staple fiber, there is considerable amount of air space within the yarn and in

some loosely twisted wool yarn may amount to 70 per cent of the yarn volume. In contrast to this, many filament yarns have only small amounts of air space in the vicinity of ten per cent of the yarn volume. Because of these wide differences and because of such other effects as processing methods and humidity, it is impossible to work up a satisfactory theoretical treatment of the effect of twist on the diameter of yarns. Nevertheless a number of investigators have developed empirical equations in which the twist is related to the diameter. One of the earliest of these investigations was reported by Gulati and Turner whose formula can be arranged in the form of:

$$\text{Cotton Yarn Diameter} = \frac{0.075}{\sqrt{N}\sqrt{\sqrt{T.P.I.}}} \text{ inches} \qquad (14)$$

where T.P.I. is the turns per inch in the yarn.

Another formula proposed by Merrill takes the form of

$$\text{Dia.} = \frac{.0383\,(1.275 - .055\ T.M.)}{\sqrt{N}} \qquad (15)$$

where T.M. is the cotton count twist multiple.

It has also been shown by McKenna that the Pierce formula is fairly accurate for two-ply cotton yarns, but that those yarns also become more dense as the ply twist is increased.

The equations that Barella has published can be rearranged for the units used in this book and then the diameter of a yarn can be computed from the yarn density. The following figures show how the yarn density varies with the cotton count twist multiple:

Yarn Type	*Density*
Cotton	0.56 + .0845 T.M.
Worsted	0.58 + .0755 T.M.
Woolen	0.47 + .0845 T.M.
Spun Rayon	0.60 + .0815 T.M.

The twist in a yarn can have a decided effect on the dimensions of the fabric in which it is used. Such a phenomenon is sometimes encountered during weaving and this is primarily due to the fact that hard twisted yarns will not flatten, deform and mesh together as easily as will soft twisted yarns. In actual practice when a warp yarn of normal twist had been weaving with a filling yarn of normal soft twist (T.M. = 3.5), the filling crimp was about six per cent. Then when a filling yarn with a hard twist (T.M. = 6.0) was substituted, the filling crimp was reduced to three per cent. This occurred because the high twist produced such a stiff yarn that it would not easily bend in order to introduce crimp. However, when the warp also was changed to a hard twist, the filling crimp was increased to seven per cent. Both changes caused an increase in the warp crimp. This change in twist affected the width-wise dimensions of the fabric and also the thickness of the fabric.

The twist in the yarns can also affect the dimensional changes in the fabric during subsequent treatment and use. It can be appreciated that with a tightly twisted yarn the fibers are held so firmly that they cannot achieve much movement relative to each other. Now it is known that fabrics produced from wool fibers have a marked tendency to shrink due to the felting action which comes about from the interlocking of the wool scales. However, this type of felting shrinkage can only take place if the fibers are free to move. Therefore, with a tightly twisted wool yarn, the felting shrinkage can be greatly reduced. As a matter of fact, some wool crepe dress fabrics and also some tropical worsted suiting fabrics have been produced from high twist yarns which have not shrunk more than three per cent when washed in a home laundry machine and no chemical treatment had been used to achieve this effect.

Bogaty and co-workers have shown that the use of higher twists causes a slight reduction in the shrinkage of knitted woolen fabrics and somewhat greater reduction in the shrinkage of woven woolen fabrics. Their data also show no appreciable improvement with the use of ply yarns and when the direction of twist is the same for both the warp and the filling. As an example of the amount of improvement to be expected, the following results are given in which the per cent shrinkage refers to the loss in area due to two severe washes subsequent to a relaxation. M is the cotton count twist multiple of the singles yarn.

Material	*M*	*% Shrink*
A Woven	2.1	31
B Woven	5.4	23
C Woven	Warp 2.0 S — Fill. 2.0 S	41
D Woven	Warp 2.0 Z — Fill. 2.0 S	48
E Knitted	2.1	34
F Knitted	2.6	30

An explanation has been given above which explains why a high twist can reduce felting shrinkage. The following discussion will explain how the twist direction can affect the shrinkage. This felting shrinkage is an interesting phenomenon because it has been shown by some investigators, like Best-Gordon at Courtaulds, that at times rayon fibers are capable of experiencing felting shrinkage. Therefore it is not altogether improbable to expect that with further technical advances it may be possible to produce a synthetic fiber which is capable of felting to a marked extent.

The direction of twist can affect the felting action by affecting the ease with which the warp and filling yarns can mesh together. This is best accomplished when the fibers on adjacent surfaces of the two yarns are inclined in the same direction. For instance, the lower surface of a Z twist warp yarn is inclined in the S direction, but the filling lies at approximately right angles to the warp yarn and its upper surface must mesh with the lower surface of the warp if the yarn is to be restrained and felting shrinkage reduced. Therefore, to mesh most easily the filling must be twisted in the Z direction. In other words, felting is reduced when the warp and filling are twisted in the same directions. However, still another factor must be taken into account and that is that the sum of the helix angles of these yarns must approach 90° if they are to mesh most easily. With normal twists, however, the sum of these two angles are closer to 60°. This is partly overcome by the flattening of the yarns which will increase their total helix angle. A more important method of improving the angle of mesh is from the use of twill weaves which can cause the yarns to be deformed so that they cross at an angle somewhat less than 90°. For most twill weaves, this is accomplished when the twill direction is the same as the twist direction. Then the minimum felting will occur with conditions as shown in the following table for A and B while maximum fiber movement and therefore felting is obtained with C and D.

	A	B	C	D
Warp Twist	S	S	Z	S
Filling Twist	S	Z	S	Z
Twill Direction	S	Z	S	Z

National Cotton Council Elects Officers

The National Cotton Council held its 17th annual meeting Jan. 31-Feb. 1 at the Hotel Shamrock, Houston, Tex., with some 1,100 attending. Highlighting the two-day meeting were addresses by Secretary of Agriculture Ezra T. Benson and American Farm Bureau Federation President Charles B. Shuman. William Thomas Wynn, farmer and lawyer, Greenville, Miss., was elected president of the council to succeed A. L. Durand, Hobart, Okla., who becomes chairman of the board. Oscar Johnston, Greenville, Miss., retains his position as founder and honorary chairman of the board.

Other officers elected included William Rhea Blake, executive vice-president; B. L. Anderson, Fort Worth, Tex.; L. T. Barringer, Memphis, Tenn.; and H. L. Wingate, Macon, Ga., as vice-presidents; and Aubrey Lockett, Vernon, Tex., treasurer. Robert R. Coker, Hartsville, S. C.; Lamar Fleming, Houston, Tex.; and Harold A. Young, North Little Rock, Ark., were named advisors to the board. New members of the board of directors include A. L. Story, Charleston, Mo.; James F. Francis, Peoria, Ariz.; A. G. Swint, Orchard Hill, Ga.; B. L. Mallory Jr., Memphis, Tenn.; Harris F. Underwood, Lubbock, Tex.; J. L. Hurschler, Pasadena, Cal.; A. G. Paxton, Greenville, Miss.; and L. T. Lewis, Roswell, N. M.

During the course of the meeting the delegates studied long-range plans for expanding cotton's markets, approved a formal program of promotion and research for the coming year, reviewed events of the past year and discussed projects and policies for 1955.

U. S. Testing Co. Announces Textile Course

The U. S. Testing Co. Inc. has announced the 18th Annual Summer Course in Textiles and Testing Techniques (s-275) which will be conducted during the first half of the Teachers College Summer Session, Columbia University, July 5-22, 1955. The course will be held at the company's main laboratories in Hoboken, N. J. This also marks the sixth year Teachers College has accredited the course for three points credit toward a degree.

The three-week course is open to representatives in the fields of home economics, education, retailing and others who have had some elementary textile training. Through lectures, demonstrations and practice sessions, students will cover all phases of analyses on textiles and related merchandise, identification of fibers, chemistry, detergency and research. Special emphasis will be given to the various textile processing and finishing techniques. Field trips are scheduled during the course to supplement the class work.

The course offers an outstanding opportunity for further education in textile developments. Former students have found the course stimulating and informative. Enrollment has included representatives from all over the U. S. as well as from foreign countries. Classes will be in session from

9:00 a. m. to 4:00 p. m. daily. In addition, three days, July 25-27, are scheduled with special elective field trips for interested class members.

A.S.Q.C. Textile Division Holds Meet

Textiles can be too well made as well as not made good enough. This was one of the conclusions presented at the fifth annual conference of the Textile Division of the American Society for Quality Control held at Clemson, S. C., Jan. 27-29. If the product is made too well, the cost may be too high. On the other hand, if the quality is not satisfactory, the product cannot be sold. Mathematical methods are now widely used to control quality so that a good balance is obtained between costs and desired properties. J. A. Fife, superintendent of Scottdale (Ga.) Mills, pointed out that "Management is usually the first to advocate statistical quality control because they can visualize the savings resulting from it." P. H. Burrus Jr., vice-president and general manager, Jackson Mills, Wellford, S. C., discussed how management could "sell" quality control to the rest of the mill personnel. L. A. Fluck, manager, textile resin department, American Cyanamid Co., Bound Brook, N. J., felt that it was not sufficient to check on quality by arbitrarily measuring something like roving size, but instead it was necessary to use a test which would measure how the finished product will perform for the final user. These were a few of the conclusions reached by a number of prominent speakers.

Task group meetings were held in which specific details were discussed on how to measure and control the quality at each step in staple fiber processing. These meetings had the following group leaders: cotton raw stock, J. Little; staple fiber picker laps, B. Griffin; staple fiber sliver and roving, C. L. Harris; staple fiber yarn, J. Simpson; fabric imperfections, G. W. Edwards. Educational sessions were conducted by Dr. David S. Chambers, associate professor of statistics, University of Tennessee, Knoxville. Proper sampling techniques were described in these sessions.

Color Card Association Releases Forecast

The Textile Color Card Association has announced its 1955 color cards for woolens and worsteds and man-made fibers and silk. Prominent in the man-made fibers and silk colors are orangy tile, copper and amber tones, golden spice, coffee and deep carbon brown. Rich vibrant reds are represented in geranium cranberry and ruby shades. Blues

stressed in the advance forecast include muted graphite or slate tones and animated lighter-than-royal versions. Turquoise, peacock and duck blues also receive emphasis, as well as violine shades comprising violet for evening wear and lighter mauve, lilac and hyacinth tones. Plum and cyclamen are pinker variations of the mauve theme. In the gamut of greens, a sparkling emerald hue is listed, with subtle yellow-tinged olive and bronze also included. Misty silver gray and a deep lead tone are neutral notes. The card lists 40 colors in all.

The woolen and worsted card also lists 40 shades. Much emphasis is placed on warm golden, amber and coppery tones, deepening into dark chocolate brown. Sand, fawn and earth browns further stress the strong feeling for the beige to brown scale. Animated brick, burnt orange and red pepper variations are also included as are greens in jasper and jade versions and in a deep antique bronze shade. In the red gamut, preference is expressed for the bluer note, as shown in glowing rosy and garnet types. Mulberry, purplish grape and subtle vintage pink shades interpret the high fashion violine influence. Other colors listed include bois de rose, lively peacock, parakeet and duck blues with an undertone of green, lapis and a blackish sapphire shade. Medium and darker graphite grays complete the color forecast.

Treatment Developed For Tobacco Shade Cloth

An improved, protectively-treated cotton tobacco shade cloth has saved some Florida tobacco growers an estimated $200 per acre each season they have used it over their fields. A simple, economical treatment was developed by scientists of the Southern Utilization Research Branch of the U. S. Department of Agriculture, New Orleans, La. The branch reports that at least two textile-finishing companies are producing the treated cloth for sale. When the current tobacco-growing season opens, about five million square yards will be going into a second or a third year's use, and an additional three or four million yards will be put out for the first time.

Growers who used 50,000 square yards to cover ten acres in 1951, 1952 and 1953 report that treated cloth is usable three seasons as top cover, without replacements, and then it retains about a quarter of its strength. In contrast, untreated cloth usually falls to pieces after only one season out of doors. Cotton farmers also benefit—in that synthetic fibers are attempting to capture this market of cotton, the branch reports. Although only about 14,000 bales of cotton

a year are consumed for shade cloth, this is one of the many small markets that, added together, helps make cotton the most used fiber in the world.

Lowell Named A.T.M.A. Head At Annual Meet

The American Textile Machinery Association held its annual meeting Feb. 17 at Boston, Mass., and elected W. Frank Lowell, vice-president, Saco-Lowell Shops, Boston, its president, succeeding Frederic W. Howe, president of Crompton & Knowles Loom Works, Worcester, Mass. Mr. Howe, who retired after two terms as president, continues as a member of the board.

F. W. Howe Jr.

W. Frank Lowell

James H. Hunter, vice-president of James Hunter Machine Co., North Adams, Mass., succeeds Mr. Lowell as vice-president. Samuel F. Rockwell, president and treasurer of Davis & Furber Machine Co., North Andover, Mass., was re-elected treasurer and Mrs. Mildred Barnwell Andrews was named executive secretary in addition to her post as director of public relations activities.

In addition to Messrs. Lowell, Hunter, Rockwell and Howe, members of the board include Thomas H. West, president, Draper Corp., Hopedale, Mass.; R. G. Ross, vice-president, Barber-Colman Co., Rockford, Ill.; J. Hugh Bolton, president, Whitin Machine Works, Whitinsville, Mass.; Robert Leeson, president, Universal Winding Co., Providence, R. I.; William H. Rometsch, secretary-treasurer of Fletcher Works Inc., Philadelphia, Pa.; and J. Ebert Butterworth, president, H. W. Butterworth & Sons Co., Bethayres, Pa.

Other member firms of the A.T.M.A. include Abington Textile Machinery Works, Boston; Allen Warper Co., Lowell, Mass.; Birch Bros. Inc., Somerville, Mass.; G. L. Brownell Inc., Worcester, Mass.; Burlington Engineering Co. Inc., Graham, N. C.; Cocker Machine & Foundry Co., Gastonia, N. C.; Curlator Corp., East Rochester, N. Y.; Curtis & Marble Machine Co., Worcester; Duke Machine Co. Inc., Salem, Mass.; Fayscott Corp., Dexter, Me.; Foster Machine Co., Westfield, Mass.; David Gessner Co.; Worcester; George S. Harwood & Son, Worcester; Hermas Machine Co. Inc., Hawthorne, N. J.; Holdsworth Gill Screw Co. Inc., Pawtucket, R. I.; Hassong-Walker-Davis Co., Philadelphia; Charles B. Johnson Machine Works, Paterson, N. J.; Kearny (N. J.) Mfg. Co. Inc.; F. A. Lazenby & Co., Baltimore, Md.; Marshall & Williams Corp., Providence; Mawaco Machine Co., Brooklyn, N. Y.; Morrison Machine Co., Paterson, N. J.; Mount Hope Machinery Co., Taunton, Mass.; The National Drying Machinery Co., Philadelphia; Parks-Cramer Co., Fitchburg, Mass.; B. F. Perkins & Son Inc., Holyoke, Mass.; Proctor & Schwartz Inc., Philadelphia; Riggs and Lombard Inc., Lowell, Mass.; B. S. Roy and Son Co., Worcester; C. G. Sargent's Sons Corp., Graniteville, Mass.; Sipp-Eastwood Corp., Bloomfield, N. J.; Smith, Drum & Co., Philadelphia; James Smith & Son, Worcester; The Terrell Machine Co., Charlotte, N. C.; U. S. Textile

Machine Co., Scranton, Pa.; Van Vlaanderen Machine Co., Paterson, N. J.; The Warner & Swasey Co., Cleveland, Ohio; Werner Machine Co. Inc., Passaic, N. J.; The Wiesner-Rapp Co. Inc., Buffalo, N. Y.; Winsor & Jerauld Mfg. Co. Inc., Providence, R. I.; and Woonsocket (R. I.) Napping Machinery Co.

Textile Safety Program Adopted

The executive committee of the National Safety Council's textile section recently adopted a streamlined program for safety training at a meeting held at the offices of Celanese Corp., Charlotte, N. C. The new program features a safety kit for distribution to all textile plants holding membership in the council. The kit contains materials suggesting the use of a different theme each month. The information is based on careful analysis of accidents occuring in textile mills. Franklin G. Pater, textile representative from the council, predicted that accidents will be reduced by 15 per cent in the textile industry in 1955.

Plans Announced For A.A.T.C.C. Convention

The Philadelphia (Pa.) Section of the American Association of Textile Chemists & Colorists has announced plans for the program of the 1955 national convention to be held Sept. 22-24 at Chalfonte-Haddon Hall, Atlantic City, N. J.

The technical program will emphasize mill problems of the dyer and finisher in an attempt to attract a larger number of men from this particular phase of the industry. The technical sessions will be held Thursday afternoon, Sept. 22; Friday morning, Sept. 23; and Saturday morning, Sept. 24. The technical committee on research will be in session Thursday morning, Sept. 22. Intersectional contest papers from the various sections will be heard Saturday afternoon, Sept. 24. The Olney award will be given at a dinner Thursday evening, Sept. 22. The alumni luncheon is planned for Saturday noon, Sept. 24. The convention will be climaxed with a banquet and entertainment Saturday evening, Sept. 24.

Electrical Engineers To Meet March 3

A conference on electrical applications for the textile industry, sponsored by the American Institute of Electrical Engineers, will be held March 3 at the Georgia Institute of Technology, Atlanta.

The morning session will present papers on "The Problem of Assuring Adequate Interrupting Capacity During Plant

Expansion and Modernization," by J. R. Potter, Lockwood Greene Engineers Inc.; and "How We Handle Circuit Protection During Plant Expansion," by H. Carl Bauman, Chemical Construction Corp., New York City.

The afternoon session will include talks on "The Practical Problems of Applying Circuit Protectors in the Textile Industry," by H. B. Gear, General Electric Co., Atlanta; "Designing Circuit Breakers and Fuses into Today's Textile Plant Distribution Systems," by M. S. Carlson, I. T. E. Circuit Breaker Co., Philadelphia, Pa.; and "New Applications for Fuses in Textile Plants," by J. C. Lebens, Bussmann Mfg. Co., St. Louis, Mo. Discussion periods will follow both sessions.

Man-Made Fiber Production Down In '54

Total man-made fiber production in the U. S. during 1954 was 1,431,800,000 pounds, a decline of 4.5 per cent from 1953, according to the Textile Organon, statistical bulletin of the Textile Economics Bureau Inc. Production of rayon and acetate amounted to 1,085,700,000 pounds, a 9.5 per cent decrease from 1953 and 16 per cent under the all-time production record of 1951. Non-cellulosic fiber output in 1954 was 346,100,000 pounds, 14.5 per cent over 1953. The non-cellulosic fibers covered include acrylic fiber, nylon, polyester fiber, polyethylene fiber, polyvinylacetate fiber, protein fiber, saran and textile glass fiber.

World production of rayon and acetate filament yarn and staple in 1954, on the other hand, is estimated by the Organon at 4,360,000,000 pounds, a figure 5.5 per cent over the previous year and a new record. World output of staple showed a gain of 15 per cent, but yarn production declined 4.5 per cent.

Compared with 1953, rayon and acetate production in the U. S. showed declines in all categories except staple+tow, which increased by a striking 42 per cent. Output decreases from 1953 to 1954 were as follows: viscose high tenacity rayon yarn 25.5; regular+intermediate tenacity rayon yarn 16.5; acetate yarn 13.5; and acetate staple+tow 26 per cent.

The Organon points out that shipments generally kept pace with or exceeded production during 1954 and producers' stock thus declined to 87,600,000 pounds at year-end, a drop of 22,200,000 pounds from the stock held at the end of 1953. The Organon also calls attention to the fact that, while shipments in the last several months of 1953 were on the downgrade, the trend in the latter part of 1954 was definitely upward.

While the total production of rayon and acetate was down 9.5 per cent in 1954, shipments totaling 1,107,900,000 pounds were only down five per cent. Shipments in 1954 were 12.5 per cent below the all-time record of 1,268,-600,000 pounds set in 1950.

Imports of man-made staple in the first 11 months of 1954 totaled 45,819,000 pounds, the figure for the full year 1953 being 68,711,000 pounds. Imports consisted chiefly of rayon staple; 45,661,000 pounds were in this category in the January-November 1954 period, the balance of 158,000 pounds being non-cellulosic man-made fiber.

In the production of non-cellulosic man-made fibers, the U. S. continued its upward trend during 1954. Output of 346,100,000 pounds was a new record. Non-cellulosic filament yarn+monofilament production in 1954 was 282,-300,000 pounds, 13.5 per cent over 1953. Non-cellulosic

staple+tow production last year amounted to 63,800,000 pounds, up 19 per cent.

On a quarterly basis, the fourth quarter non-cellulosic fiber production of 104,100,000 pounds was a new record, exceeding the previous record in the second quarter of 1953 by 21 per cent. The staple+tow figure of 20,000,000 pounds in the last quarter of 1954 was 12.5 per cent over the previous record produced in the first quarter of 1953. Most impressive, however, was the yarn+monofilament record of 84,100,000 pounds in the last quarter, which bested the previous record in the second quarter of 1954 by 21.5 per cent.

During 1954 high tenacity rayon yarn was produced in the U. S. to the extent of 339,100,000 pounds, off 25.5 per cent compared to 1953; regular+intermediate tenacity rayon yarn 169,800,000 pounds, off 16.5 per cent; acetate yarn 197,900,000 pounds, off 13.5 per cent, and total rayon-acetate yarn 706,800,000 pounds, off 20.5 per cent.

On the other hand, U. S. 1954 production of rayon staple +tow was 311,500,000 pounds, an increase of 42 per cent over 1953 and the largest output on record. On the correct assumption that the great bulk of staple imports were rayon, it is estimated that the total of rayon staple+tow available for domestic use last year was 367,500,000 pounds, a new high exceeding the previous record figure of 297,000,000 pounds available in 1951 by 23.5 per cent.

The acetate staple+tow available for 1954 was 64,-100,000 pounds, a decline of 25.5 per cent from 1953. Total staple+tow output thus amounted to 378,900,000 pounds, or 22 per cent over 1953, while the total staple+tow available to domestic consumers was 431,700,000 pounds. The latter figure is obtained by adding production and imports and deducting producers' exports of 4,200,000 pounds. Total available staple+tow was 15.5 per cent greater in 1954 than in 1953.

The average denier of high tenacity rayon produced last year was 1550-denier, a slight decrease from the 1953 figure of 1569. The decline was attributed to an increase in the output of the high tenacity deniers of 900 and finer. The 1954 average denier of regular+intermediate rayon yarn was 171-denier as compared with 169-denier in 1953. Decreases in output occurred in all yarn deniers except 900-denier and coarser, which increased 16 per cent. In acetate yarn production, the 75 and 150-denier yarns continue to dominate as in former years. Output of 300-denier and 600-denier and coarser yarns increased from 1953 to 1954 and the production of 55-denier and finer showed no change; production of all other deniers declined.

The Organon analysis of yarn shipments by trade reveals that shipments for tires and related uses at 333,700,000 pounds were 24 per cent less than in 1953. Shipments for textile uses at 385,100,000 pounds were off only 9.5 per cent. Within the textile uses, there was a 6.5 per cent increase in shipments for warp knitting and a 10 per cent rise in deliveries for narrow weaving. On the other hand, de-

clines were shown for hosiery (26 per cent), circular knitting (12.5 per cent), broad weaving (11.5 per cent), and miscellaneous uses (three per cent).

The Organon points out that, except for broad weaving and warp knit goods where acetate yarn is the predominant fiber, rayon consumption continues to be substantially larger than acetate.

Analyzing yarn shipments by territory, the Organon notes that the Piedmont area (North and South Carolina plus Virginia and West Virginia) continues to be by far the largest territory to which rayon and acetate yarn is shipped. Forty per cent of all domestic yarn shipments went to this territory in 1954, compared to 39.5 per cent in 1953. Shipments to the South (Oklahoma, Arkansas, Kentucky, Georgia, etc.) accounted for 19.5 per cent of the total shipments compared with 21 per cent in 1953.

Shipments to Pennsylvania and Ohio constituted 20 per cent of the total in 1954, unchanged from 1953, while the New England share was 11.5 per cent, compared with 12.5 per cent in 1953. New York State and New Jersey took eight per cent of the total in 1954 as against six per cent the year before, while the West and Midwest held to one per cent of the total in both years.

The cotton system of spinning continues to consume the great bulk of rayon+acetate staple+tow shipped to domestic customers, according to the Organon. Outstanding in the 1954 figures is the tripling of shipments to carpet and rug manufacturers, which includes shipments to tufted rug producers. By territory, the Piedmont area consumes about two-thirds of the domestic producers' shipments of staple+tow with most of the balance going to the South and New England.

Carded Cotton Yarn Spinners Sold Into March

Carded cotton sales yarn spinners started the new year with their sold-ahead position extending well into March, the Textile Information Service reports. On Jan. 8, unfilled orders on spinners' books amounted to 8.86 weeks' production and were 5.16 times stocks on hand. This compares with unfilled orders on Dec. 4 equal to 8.31 weeks' output and 4.98 times stocks. On Jan. 3 last year, unfilled orders amounted to 9.30 weeks' production and were 9.43 times stocks on hand.

Spinners' inventories, including yarn made for future deliveries against unfilled orders, amounted to 1.72 weeks' production on Jan. 8. On Dec. 4 stocks equalled 1.67 weeks' output and stocks on Jan. 3, 1953, amounted to 98.6 per cent of a week's production.

According to figures compiled by the Carded Yarn Association covering reports from 1.4 million member spindles, production in the week ended Jan. 8 consisted of 36.2 per cent knitting yarn, 32.6 per cent weaving yarn and 31.2 per cent all others. On Dec. 4, the percentages were 33.4, 33.9 and 32.7, respectively.

CLASSIFIED ADVERTISING

Prompt Repairs To—

ANY MAKE LIQUID METER

SHIP TO CITIES SUPPLY CO. SUMTER, S. C.

A. Benson (Ben) Davis
New, Used and Rebuilt Machinery
Manufacturers Agent
Appraisals and Liquidations
2710 Picardy Place
Phone EDison 3-6661
Charlotte 7, N. C.

LONG ESTABLISHED NEW ENGLAND MANUFACTURER OF WEAVING SPECIALTIES requires representation in the following territories: Texas, Arkansas and Oklahoma; Middle Atlantic States. Lines suitable for manufacturers' agents with present following.

Write Box "CEM," care Textile Bulletin, P. O. Box 1225, Charlotte 1, N. C.

CHARLAB KSB CLEANER

Removes inks, dyestuffs, pigments, varnishes, waxes, alkyd, UF and melamine resins from equipment.

Sample no charge. Dept. C.E.

CHARLOTTE CHEMICAL LABS., INC.
CHARLOTTE, N. C.

HELP WANTED

COTTON MILL for carded cotton goods being erected in Cuba. Need Superintendent and General Manager; also Loom Fixers and experienced Weaving Room Overseer. Only 110 miles from Key West, Fla. Write experience, qualifications and anticipated salary to Cia. Distribuidora de Calzado S. A., P. O. Box 78, Matanzas, Cuba.

Manufacturer's Agent Available

Georgia Tech graduate; 18 years' practical mill experience, including superintendency of Southern mill. Past few years have been sales representative for Southern manufacturer of textile mill equipment. Widely acquainted in Georgia and Alabama and prefer this territory. Also prefer commission arrangement. Address replies to Box "S. R.," care Textile Bulletin, P. O. Box 1225, Charlotte 1, N. C.

COTTON TEXTILE MILL FOREMEN and OVERSEERS WANTED

Men with at least three years' experience for new state operated plant near San Francisco. Overseer and foreman jobs open in preparation, weaving, finishing. Must be fully competent to assign and supervise work and train new men. Send brief statement of experience to Recruitment Section, California State Personnel Board, Sacramento 14, California.

FOR SALE

SLASHER DRIVES
NEW—NEVER USED

WESTINGHOUSE Three-Motor A.C.—D.C. (Rototrol Type)

RELIANCE Three-Motor A.C.—D.C.

Complete particulars and prices on application. Write to

Box "T. A.," care Textile Bulletin
P. O. Box 1225, Charlotte 1, N. C.

YOU CAN COUNT ON WAK COUNTERS
Single - Double - Triple
Rotary Counters • Slasher Counters • Hank Clocks
Pick Counters • Picker Counters • Yardage Counters
W A K INDUSTRIES Charlotte, N. C.

WANTED TO BUY

Roller cloth, grey or tweed.

STANDARD ROLLER COVERING SHOPS
Box 154
Griffin, Ga.

GUARANTEED USED BOBBINS

Twister Bobbins for 4-inch Ring Twisters. Twister Bobbins for 4½-inch Ring Twisters. Many styles 8-inch and 8¾-inch Quills. Send us samples of what you need.

CHARLES G. STOVER COMPANY
West Point, Ga.

WANTED—Job as dyer. Twenty years' experience on raw stock, package, beams, and all types color. Good references. Reply to Box "GF," care Textile Bulletin, P. O. Box 1225, Charlotte 1, N. C.

WANTED—Position as General Overseer of Carding, Spinning, Twisting and Winding. Experienced all phases of cotton and waste manufacturing including Tube Twists. Some Rayon experience. Capable of directing entire unit. Presently employed; sober; high school education; age 46. Address Box "KS," care Textile Bulletin, P. O. Box 1225, Charlotte 1, N. C.

POSITION WANTED as foreman of spinning. Twelve years' experience as foreman. Will go anywhere in the U. S. Reply to Box "G. P.," care Textile Bulletin, P. O. Box 1225, Charlotte 1, N. C.

WANTED—Position as general overseer of cloth-room or sewing room. Experienced on rayons and cottons. A total of 15 years' experience. Can furnish references. Write to Box "D. S.," care Textile Bulletin, P. O. Box 1225, Charlotte 1, N. C.

WANTED—Job as second hand in spinning department. Can overhaul or erect. Available to begin work at once. 30 years' experience in spinning. A-1 references. Write to Box "W. D.," care Textile Bulletin, P. O. Box 1225, Charlotte 1, N. C.

POSITION WANTED in spinning room as second hand or overhauler. 20 years' experience in spinning on all make frames. Reply to Box "T. G.," care Textile Bulletin, P. O. Box 1225, Charlotte 1, N. C.

POSITION WANTED as fixer in carding, roving, spinning, twisting, winding, gilling, pin drafting and Bradford spinning. I. C. S. course; experienced on cotton and rayon, wool and worsted. Phone 3773, Laurel Hill, N. C.

POSITION WANTED as overseer of carding and spinning. 20 years' experience in carding and spinning—14 years as overseer. 38 years old; married; sober; presently employed but desires change. I. C. S. graduate in carding and spinning. Can furnish references. Reply to Box "J. H.," care Textile Bulletin, P. O. Box 1225, Charlotte 1, N. C.

POSITIONS OPEN—WE CAN PLACE—Lace mill manager; woolen, worsted and cotton yarn and cloth mill mgrs., supts., asst. supts. and designers; knit. mill mgrs., supts., overseers and fixers; night supt. cot. bleach., Dye. and finish. plant; asst. supt. jacquard mill; overseer cot. card. and spin. combined. Mechanical engineers, master mechanics and plant engineers, salary range $6,000 to $15,000 year; industrial engineers—time study men; textile school graduates; sewing mach. flexrs. If you are available for a good paying position in the textile field, it will pay you to have your application in our files. We are receiving more inquiries and placing more men than for several months. Negotiations are confidential. No fee to be paid unless you accept employment through our Service.

CHARLES P. RAYMOND SERVICE, INC.

294 Washington St. Phone: LIberty 2-6547 Boston 8, Mass.
Over 55 Years in Business

Index to Advertising

	Page
—A—	
Aldrich Machine Works	21
American Monorail Co.	6
Anco Div. American Associates, Inc.	60
Armstrong Cork Co.	26 and 27
Ashworth Bros., Inc.	29 and 30
—B—	
Baily & Co., Inc., Joshua L.	118
Barber-Colman Co.	34
Barkley Machine Works	107
Barreled Sunlight Paint Co.	37
Biberstein, Bowles & Meacham, Inc.	114
Bryant Electric Repair Co., Inc.	107
Bryant Supply Co., Inc.	115
Bullard Clark Co., The	19
Burkart-Schier Chemical Co.	117
—C—	
Charlotte Chemical Laboratories, Inc.	119
Cities Supply Co., Inc.	119
Clinton Foods Inc.	99
Cluett Peabody & Co., Inc.	15, 16 and 17
Cocker Machine & Foundry Co.	36
Cole Mfg. Co., R. D.	118
Corn Products Sales Co.	10
Cotton Mill Machinery Co., Inc.	44
Crompton & Knowles Loom Works	9
Cronland Warp Roll Co., Inc.	83
—D—	
D & C Machine Co.	113
Davis, A. Benson (Ben)	119
Dayton Rubber Co., The	4 and 5
Dillard Paper Co.	66
Dolge Co., The C. B.	96
Draper Corp.	2
Dronsfield Bros.	102
Du Pont de Nemours & Co., E. I. Dyestuffs Division	7
—F—	
Ferguson Gear Co.	102
Foster Machine Co.	45
—G—	
Gaston County Dyeing Machine Co.	49
Gastonia Brush Co.	117
Gastonia Roller, Flyer & Spindle Co.	76
Gastonia Textile Sheet Metal Works, Inc.	111
General Asbestos Rubber Div. of Raybestos-Manhattan, Inc.	96
General Dyestuff Corp.	53
Gossett Machine Works	31
Greensboro Loom Reed Co.	61, 63 and 83
Gulf Oil Corp.	13
—H—	
Hall & Sons Laboratory, W. M.	76
Holyoke Machine Co.	40
—I—	
Ideal Industries, Inc.	18
Industrial Rayon Corp.	24 and 25
—J—	
Jacobs Mfg. Co., The E. H. (Northern and Southern Divisions)	19
—K—	
Keever Starch Co.	81
—L—	
Landis, Inc., Oliver D.	46
Loper Co., Ralph E.	101
—M—	
Manhattan Rubber Division	96
Manton-Gaulin Mfg. Co., Inc.	55
Mount Hope Machinery Co.	89
—N—	
National Aniline Div., Allied Chemical & Dye Corp.	11
National Starch Products, Inc.	8
National Vulcanized Fibre Co.	32 and 33
N. Y. & N. J. Lubricant Co.	Front Cover
North, Inc., Frank G.	83
—O—	
Oakite Products, Inc.	114
Orr Felt & Blanket Co., The	46
—P—	
Paist Sales Co.	89
Pease & Co., J. N.	118
Penick & Ford, Ltd., Inc.	52
Philadelphia Quartz Co.	107
Phoenix Oil Co.	112
Piedmont Processing Co.	111
—R—	
Raybestos-Manhattan, Inc. General Asbestos & Rubber Div.	96
Raymond Service, Inc., Chas. P.	119
Reiner, Inc., Robert	20
Rice Dobby Chain Co.	83
Roberts Co.	43
Rohm & Haas Co.	41
—S—	
Saco-Lowell Shops	38 and 57
Salisbury Metal Products Co.	76
Scott Testers, Inc.	116
Shelton Hotel	62
Sims Metal Works	115
Sirrine Co., J. E.	116
Slip-Not Belting Corp.	54
Solvay Process Div., Allied Chemical & Dye Corp.	116
Sonoco Products Co.	3
Southern Shuttles Div. (Steel Heddle Mfg. Co.)	22, 23 and 39
Southern States Equipment Corp.	58 and 59
Standard Chemical Products	114
Steel Heddle Mfg. Co. and Southern Shuttles Div.	22, 23 and 39
—T—	
Taylor & Co., R. M.	101
Terrell Machine Co., Inc., The	35
Textile Apron Co.	113
Textile Shops, The	50
Trust Co. of Ga.	102
—U—	
U. S. Ring Traveler Co.	96
Universal Winding Co.	28
—V—	
Valentine Co., J. W.	117
Veeder-Root, Inc.	Back Cover
—W—	
WAK Industries	119
Watson & Desmond	101
West Point Foundry & Machine Co.	121
Whitehead Engineering Co.	62
Whitin Machine Works	14 and 51
Whitinsville Spinning Ring Co.	117

HANDY SUBSCRIPTION BLANK

Please enter my subscription to TEXTILE BULLETIN for _____ (Check) one year at $1.50 or _____ (Check) three years at $3.00.

(NOTE: In some cases four to six weeks are required in the processing of a new subscription before copies begin to reach you; please be patient.)

SIGNED _____

POSITION _____

FIRM _____

ADDRESS _____

_____

_____ REMITTANCE ENCLOSED; _____ SEND BILL.

Please Send Money Order or Check as we cannot be responsible for cash.

Mail to TEXTILE BULLETIN, P. O. Box 1225, CHARLOTTE 1, N. C.

The WEST POINT **AIR-DRI** Slasher

UP TO 1500 POUNDS PER HOUR

HOT AIR DRYING at its best

For WORSTED, COTTON and SYNTHETICS

REASONABLE INITIAL COST

LOW OPERATING COST

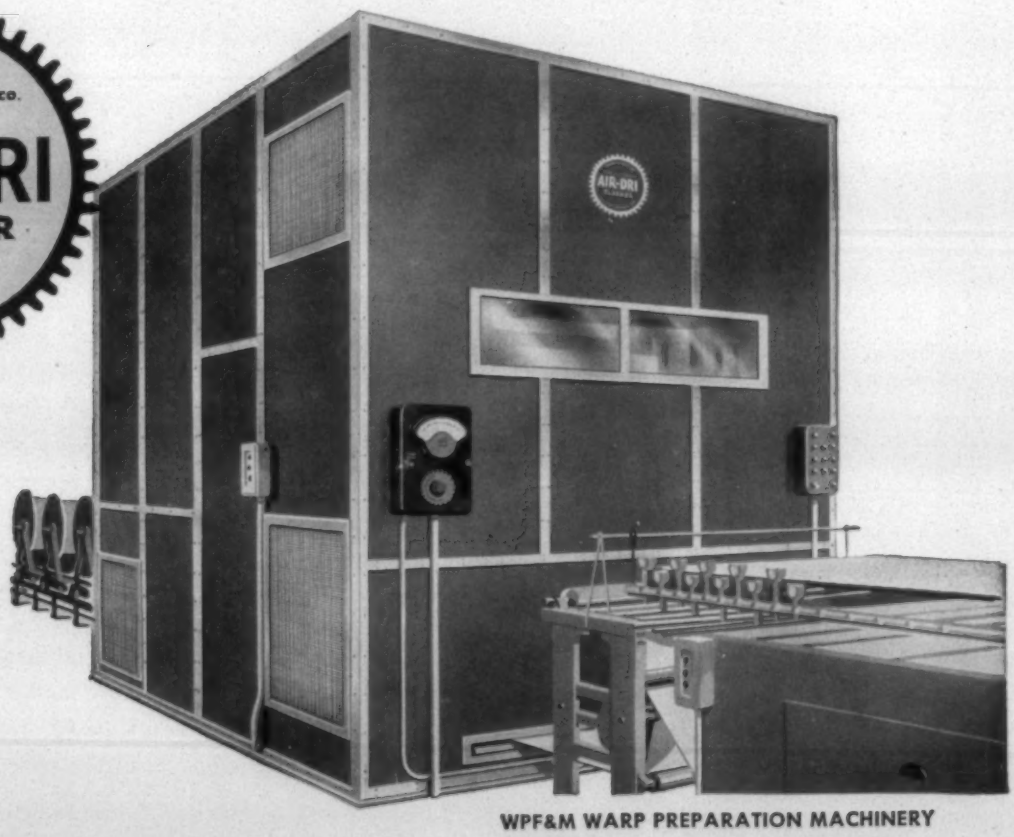
Here's a new high-production hot-air slasher, designed for natural or synthetic fibers, capable of greatly increasing production with little increase in space requirements.

With efficient new Air-Dri Slashers as replacements for out-of-date equipment, you can, in many cases, double or triple your slasher output, eliminate overtime and greatly improve warp quality.

Yarn is 40% dry by the time it reaches the first guide roll because a wet splitting device divides the yarn into layers as it enters the dryer.

We will be glad to furnish you with detailed specifications for the advance-design Air-Dri Slasher on request.

WEST POINT FOUNDRY & MACHINE CO.
AIR-DRI SLASHER
WEST POINT, GA., U.S.A.



WPF&M WARP PREPARATION MACHINERY

Air-Dri Slashers — Multi-Cylinder Slashers
Cyl-Air Slashers — Callaway Sample Slashers
WPF&M Hi-Speed 4 Cylinder Slashers
Standard 2 and 3 Cylinder Slashers

SLASHER MODERNIZATION EQUIPMENT

Hi-Speed Head Ends — Special Width Head Ends
Additional Cylinders — Multi-Motor Drives
Stretch Control Units — Equi-Tension Creels
Temperature, Speed and Tension Control Devices
Size Boxes, Size Kettles, and Size pumps

CORDUROY CUTTING MACHINES AND BRUSHERS

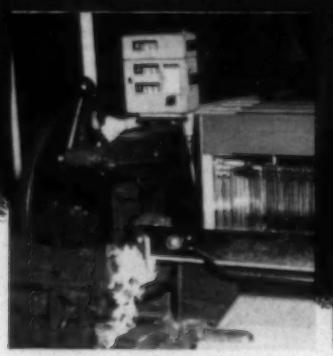
WPF&M

WEST POINT FOUNDRY & MACHINE CO.
WEST POINT, GEORGIA

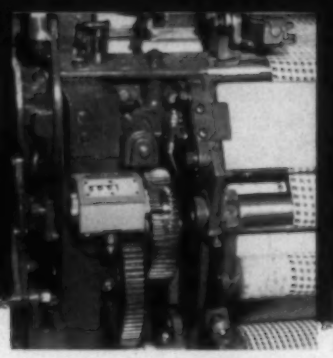
THIS COMPLETE VEEDER-ROOT "Countrol Package"

gives you AUTOMATIC UNIFORMITY all through your Mill . . . with New VEEDER-ROOT COUNTERS

. . . on Looms | **. . . on Frames**

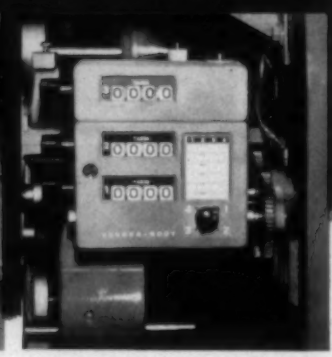


2-3-4 Pick Counter on Loom



Cut Meter on Loom

2-3-4 Hank Counter and Predetermining Counter on Drawing Frame



2-3-4 Yardage Counter and Predetermining Counter on Spinning Frame

On looms, 2-3-4 Pick Counters keep accurate production records and provide a basis for wage payment . . . while Cut Meters help maintain uniformity of cut-lengths of cloth, which is insisted upon today by the cutting-up trades.

On frames and other preparatory equipment, Hank, Yardage and Predetermining Counters hold can-variation to the minimum . . . and make it possible to run the largest economical packages.

This complete Veeder-Root "*Count*rol Package" adds up to better, automatic uniformity all through the mill. And that's why it pays *any* mill to get this Package of new and modern Veeder-Root Counters, when modernizing present machinery or buying new. Get in touch with the nearest Veeder-Root office *today*.

VEEDER-ROOT
INCORPORATED
"The Name that Counts"

HARTFORD 2, CONN. • GREENVILLE, S. C.

Chicago 6, Ill. • New York 19, N. Y.
Montreal 2, Canada • Dundee, Scotland
Offices and Agents in Principal Cities